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Examining the Effects of Recycling Education on the Knowledge, Attitudes, and Behaviors of Elementary School Students

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Abstract: In order to promote environmental sustainability, the Unit 5 School District in McLean County, Illinois has recognized the need to increase recycling rates within the district. As a part of the efforts to encourage recycling in Unit 5 schools, this study considers the barriers that may prevent the effective implementation of environmental education programs in school curricula, as well as the elements that contribute to the success of these programs. Furthermore, this study examines the effects of recycling educational programs on the knowledge, attitudes, and behaviors of second and third grade students at Fox Creek Elementary School in Bloomington, Illinois. This study reveals that recycling education can positively impact the environmental attitudes and behaviors of students and increase their knowledge. The culmination of this project provides suggestions for how Unit 5 schools can increase and improve environmental education programs within their curricula.

Introduction

As the condition of our natural world has significantly deteriorated over the years, both children and adults have become increasingly concerned about the fate of our failing environment. In the context of the environmental movements in the 1970's Lyon stated, “Knowledgeable people from many walks of life are now concerned that man’s survival may well depend on how he responds to the challenge of caring for his environment” (1975). Unfortunately, it is evident that man has not adequately responded to that challenge, as indicated by the increased severity of a number of environmental problems. Due to the central role of human actions in the majority of our environmental problems, it is essential that we foster an understanding of and appreciation for our natural environment in today’s society. The role of environmental education has become vital, as it seeks to provide knowledge to lessen or reverse the negative behaviors that lead to the degradation of the environment. As Sale and Lee describe, we have become ignorant, and in this ignorance we are steadily losing our ability to live with the land instead of working against it. One of the ways through which we might overcome this ignorance is to educate children about the environment, so that we might promote their development into responsible, informed citizens (Sale and Lee 1972). It is in these early, formative years that children develop their attitudes towards and beliefs about the environment. In order to encourage children to take action against environmental degradation, it is imperative that we assist them in forming positive environmental associations and pro-environmental attitudes. As Leeming and Porter explain, children are of particular interest for environmental education because they are less likely to have formed harmful environmental behaviors that must be unlearned, and they have a longer period in which they are able to positively influence the environment. Furthermore, children can serve as agents to encourage others to act in an environmentally responsible manner (1997).

As defined by the Tbilisi Declaration, the result of the first international conference on environmental education in 1977, environmental education should constitute a lifelong education that is provided for all ages. Furthermore, it should provide the individual with a thorough understanding of environmental problems and “the skills and attributes needed to play a productive role towards improving life and protecting the environment” ("Tbilisi Declaration" pg 13). In order to lessen and reverse contemporary environmental problems, schools are faced with the challenge of educating and producing students that are environmentally aware. Students that are environmentally aware have the knowledge and skills necessary to reject societal views that have led to environmental degradation, and instead substitute views that will improve environmental quality (Lyon 1975). Schools should take an active role in this process, serving as a vehicle to make children more aware of their role within the natural world and how to act in an environmentally responsible manner. In 2009, there were more than 98,000 public elementary schools, which represent a vast pool of children that are still in their formative years and can be influenced to become responsible citizens ("Fast Facts").

Though elementary schools hold large populations of students that can be educated about how to positively impact the environment, many aspects of modern schools challenge the environmental sustainability that they have the potential to promote. As defined by the Brundtland Commission, a part of the UN World Commission on Environment and Development, environmental sustainability is that "which implies meeting the needs of the

present without compromising the ability of future generations to meet their own needs" ("General Assembly"). However, while schools may educate about environmental sustainability, the immense production of trash in many schools conflicts with the ideals of sustainability. The average American produces more than 4 pounds of trash every day, and the sheer amount of trash produced by the large amount of students in a confined area is also exacerbated by limited recycling in many schools ("Waste and Recycling Facts"). For example, the average student carrying a packed lunch to school produces 67 pounds of waste per year ("Green Quiz Answer-School Lunch Waste"), and in many schools the cafeteria is one of the areas that is overlooked by school recycling programs due to logistical issues. A typical school cafeteria distributes more than 1,000 cartons of milk per week, and oftentimes the majority of these end up in a landfill instead of a recycling bin (Hoover and Curran 2010). The increasing amount of trash generated by schools is an example of our cultural shift towards a disposable society. In the face of societal norms where it is common to use items only once before disposing of them to landfills, it is important that our children understand that the resources of this planet are limited.

We are in the midst of ecological crisis on a global scale; however, it is ultimately our children that will bear the burden of these crises and the responsibility for remedying the problems our actions have caused. As Orr argues, “The crisis cannot be solved by the same kind of education that helped create the problems.” (as cited by Cherif 1995). Therefore, it is of the utmost importance that children are provided with the knowledge to understand the consequences of their actions. One way in which to do this is to provide students with a comprehensive environmental education, one which endows them with the knowledge and values to make a positive impact on the environment. Fortunately, many school districts, such as Unit 5 in McLean County, Illinois, are attempting to increase their environmental education efforts and promote more environmentally sustainable behaviors, such as recycling. Recycling is defined as processing something in order to regain materials for use by humans ("Recycle"), and it is a relatively simple way for schools to increase their sustainability. Unit 5, a school district with 6,740 students enrolled in elementary school, has recently begun a concerted effort to increase the amount of waste that is recycled within schools ("McLean County Unit District No. 5"). However, despite the best attempts of concerned teachers and school administrators, environmental education and recycling programs still suffer from weaknesses that negatively impact their effectiveness.

In order to understand how environmental education, specifically recycling education, affects elementary school students, I will first explore existing literature on environmental education and its effectiveness. Additionally, I will review the barriers to effective environmental education and the factors that have led to success within the field. I will examine the various ways in which environmental education has impacted the attitudes and behaviors of elementary students. I will then apply these ideas to the environmental education program in the Unit 5 school district, looking specifically at Fox Creek Elementary School, one of the 16 elementary schools in the Unit 5 School District ("McLean County Unit District No. 5").

Literature Review

There are numerous reasons why environmental education is important for elementary school students. If children do not receive adequate education about the environment, then they may or may not be provided with the knowledge and skills necessary to one day lessen or reverse the impacts of the environmental problems that they will inherit. Environmental education has positively impacted students in a variety of ways; however, there has been an overall lack of comprehensive education, and some methods of education might not be effective in eliciting behavioral change. In order to increase the effectiveness of environmental education, it is important to properly understand what environmental education entails, its barriers, and how to overcome them.

The Concept of Environmental Education

The environment is defined by the Merriam-Webster dictionary as, "the complex of physical, chemical, and biotic factors (as climate, soil, and living things) that act upon an organism or an ecological community and ultimately determine its form and survival" ("Environment"). Since it is these complex factors that determine the survival of every human, it is important that we are educated about the environment and our role in it. Educating about environmental sustainability has likely been present for centuries in some form, and through the course of its development it has been associated with a variety of definitions. Environmental education seeks to develop a society that is environmentally literate, one that understands how individuals and society relate to and impact the natural world. In order to make environmental education effective, it is important to understand all of the factors that contribute to the development of behaviors that are environmentally responsible. Both knowledge and attitudes contribute significantly to behavior, so it is necessary for environmental education to encompass knowledge, behaviors, and attitudes (Carrier 2009). Since one of the ultimate goals of environmental education is to shape human behavior, Hungerford and Volk similarly argue that increasing knowledge about environmental issues makes people more motivated to act on them. Parallel to Carrier, they acknowledge the link between knowledge, attitudes, and behavior (2005).

The aim of environmental education is to provide our youth with knowledge, in order to change their attitudes and shape their behavior into that of an environmentally responsible citizen. To foster an atmosphere in which people are encouraged to partake in environmentally friendly behaviors, children must be taught to be responsible citizens. If in the course of education we neglect to promote environmental values and attitudes, we send the message that the environment is unimportant. Environmental education aims to conquer this by preparing children to actively participate in responsible behaviors that maintain a healthy environment (Christenson 2004).

According to the Tbilisi Declaration in 1977, the result of the first Intergovernmental Conference on Environmental Education organized by the United Nations in Tbilisi, Georgia, environmental education provides people with an understanding of the major environmental problems of today's world. Furthermore, by bestowing knowledge, environmental education provides them with the skills needed to improve these problems. Environmental education seeks

to: foster an awareness of, and concern for, the interdependence of man and nature; provide every person with the opportunity to protect and improve the environment through the development of knowledge, skills, and attitudes; and create new patterns of behavior towards the environment, in individuals and society. It should be a continuous process that is lifelong, examine the issues from multiple points of view, promote cooperation as a necessity, and focus on the environment in its entirety ("Tbilisi Declaration"). Environmental education encourages students to develop strong values to guide their actions and helps them appreciate the natural world, through an understanding of it. Students must see themselves as an interdependent part of the environment, and as such environmental education must be an interdependent part of a curriculum (Sale and Lee 1972). The concept of environmental education is as multifaceted as the environment that students are being educated about. However, regardless of the complexities and different definitions of this term, it has the important goal of making people more aware of the environment. The end goal of environmental education is to shift human behaviors, in order to increase sustainability; however, awareness of the environment is the first step towards achieving this goal.

Limits and Barriers to Environmental Education

Education is perhaps one the of most commonly proposed strategies to increase environmental sustainability, working by changing knowledge and attitudes. However, as McKenzie-Mohr emphasizes, higher environmental knowledge and positive environmental attitudes are not always enough to change behaviors. For example, he describes a study in which participants were exposed to educational programs, in order to increase their awareness of energy conservation. After the completion of the program, participants indicated a greater awareness of issues regarding energy usage; however, there was a lack of behavior change accompanying the shift in attitudes and knowledge. As he describes, there are a variety of barriers that can deter individuals from participating in environmentally sustainable activities, and lack of knowledge and pro-environmental attitudes are only two (McKenzie-Mohr, 2011). According to McKenzie-Mohr, "The diversity of barriers which exist for any sustainable activity means that information campaigns alone will rarely bring about behavior change" (pg 8).

In addition to the limitations of environmental education as a strategy, there are a variety of barriers that have increased the difficulty of implementing environmental education on a wide scale in elementary schools. Ham and Sewing have identified four groups of barriers that reduce the effectiveness of environmental education programs: conceptual, logistical, educational, and attitudinal. As they describe, conceptual barriers arise from the lack of consensus about the definition of environmental education, due to the often inconsistent identity and scope of environmental education. An example of this type of barrier is the common perception that environmental education is only relevant in the school science curriculum, or the view that it is an entirely separate subject which must be incorporated into the existing curriculum. The next category, logistical barriers, are those that stem from a perceived or actual lack of funding, time, resources, etc. For example, time is needed to both develop a usable curriculum and prepare the necessary materials, before finding the time to conduct the lessons. Lack of funding and instructional materials, among other barriers, can make it difficult for teachers to implement comprehensive education programs (Ham and Sewing 1988). Even if implemented, educational programs are not effective if they just reach people that already have interest in the subject. In

order to be effective, environmental education must reach students on a broad scale. However, teachers can be resistant to efforts to include environmental components in curricula, due to the difficulty of locating available resources, materials, and support (Cheng, 2010).

Another type of barrier, educational, results from teachers' misguided beliefs about their capacity, or lack thereof, to teach environmental lessons. Teachers that lack a strong background in the environmental field might lack the interest and dedication that is necessary to provide regular environmental instruction. The last category of barrier, attitudinal, comes from teachers' attitudes about environmental education. Once again, if a teacher does not have a positive attitude about environmental education, it is unlikely to result in the instruction of a comprehensive program (Ham and Sewing 1988). Ham and Sewing found that in the opinion of elementary teachers, lack of time in the school day, in addition to lack of preparation time, are the overall chief barriers to the implementation of effective environmental education. Though the logistical barriers were ranked as the most important ones, teachers also felt that their lack of knowledge about environmental education was a significant barrier (1988). The barrier that is most significant varies between teachers and schools, but unless efforts are taken to address these barriers, environmental education will not be as effective as it could be. Identifying barriers is the first step towards eliminating or reducing them; however, some barriers are ingrained in the structure of schooling.

Stevenson has argued that the largest barrier to effective environmental education stems from the disconnect between the structure and purpose of traditional schooling methods versus the purpose of environmental education (2007). As he describes, schools were originally created as a way to transmit basic knowledge and skills to students. They were also meant to provide students with an understanding of society, culture, and their role within these things. Thus schools have become powerful transmitters of the mainstream beliefs and values of society. In the United States, the ideals of competition, achievement, individualism, and independence are dominant in society. Contrary to this, environmental education emphasizes cooperation, interdependence, and holism as its central tenants. As Stevenson states, "In environmental education rhetoric students are active thinkers and generators of knowledge, but in schools students are usually in the passive positions of spectators and recipients of other people's knowledge" (pg 147). Due to this barrier, environmental education is at odds with traditional schooling. This fact, coupled with the variety of other barriers to sustainable behavior, might explain why environmental education has not been as effective as it could be.

Disinger further argues the differences between educational systems and environmental education. As he describes, environmental education is by nature interdisciplinary, and therefore does not fit into the normal education setting. This is due to the fact that the organization of schools and certification programs for teachers are not designed for things that are not tied to the established academic disciplines. Furthermore, the way that schools are designed does not allow for the presentation of all sides of environmental issues, without bias, or the necessary background knowledge for understanding the complexities of these issues. Since many argue that there is not room to add an environmental class to school curricula, environmental education is often taught through single lessons or units where it best fits (Disinger 2005). However, this method of education does not lead to the development of a comprehensive understanding of the environment.

Elements for Effectiveness in Environmental Education

Although there are a variety of barriers that increase the difficulty of implementing effective environmental education, there are also a variety of factors that can contribute to its success. Theodore May created a framework that consisted of three categories of factors that contribute significantly to the success of environmental education. By applying this framework to a large number of elementary school teachers, May was able to determine some of the most important elements for effective environmental programs. Some of the most important elements in the category of teaching conditions were found to be a flexible curriculum, a collaborative learning environment, and students bearing the consequences of their behavior. Teachers ranked listening/questioning skills, the use of diverse instructional strategies, resourcefulness in accessing resources, and creativity as some of the most important elements of teacher competency. Teaching practices that were highly ranked were the use of personal/ student strengths/passions, experiential teaching, cooperative and inclusive learning, and a consistent "can do" vision (2000). It is evident that there is no one right way to conduct effective environmental education programs. There are a variety of techniques that can be used including: student- led discussion, lectures structured by the teacher, hands-on experiences, and field trips. In a field that is by nature interdisciplinary, it is important that teachers take a variety of approaches and play to their strengths, so that they might more effectively educate their students.

In order to effectively educate students, it is also vital to take into account differences between students and their learning styles. Research has shown that boys and girls learn best in different learning environments, with girls learning better in the traditional environment given their ability to sit still and multitask. Boys, who are characterized by impulsivity, physical aggression, and kinesthetic learning, learn better in nontraditional environments (Carrier 2009). In a study of fourth and fifth graders, Carrier found that at the end of a fourteen week environmental education program boys significantly increased their environmental knowledge scores more in the program that incorporated outdoor settings versus the traditional classroom setting. While the knowledge score of girls did increase more in the nontraditional setting, it was not statistically significant as it was for boys (Carrier 2009). Introducing learning environments that deviate from the norm and are more active can be an effective strategy for improving student learning in environmental programs. In order for environmental education to be fully successful, it is critical that instructors consider the learning styles of both boys and girls.

It is also important that children are taught in an environment that encourages multiple perspectives on environmental education. Teachers often avoid teaching multiple perspectives on environmental issues, because it is perceived that children are too young to benefit from it. In an analysis of children's books regarding recycling, Christenson found that different perspectives regarding recycling were rarely mentioned (2008). Recycling is an easy way for students to get involved in improving their local environment, and it is often promoted as extremely beneficial. However, recycling is not a one sided issue, and there can be negative sides to recycling. Cost and convenience can raise controversial issues, such as the cost versus the benefits of recycling. All of the books reviewed emphasized the importance of recycling, however no difficulties or problems were implied (Christenson 2008). It is important for children to be encouraged to consider all sides of issues relating to recycling and the environment, not only to improve their

overall understanding but to also provide avenues that foster critical thinking skills. Environmental issues are diverse and multifaceted, so it is key that children are able to critically think about these issues from different perspectives.

Effects of Environmental Education on Knowledge, Attitudes, and Behaviors

As mentioned earlier, oftentimes people who are concerned about the state of the environment turn to education as a way to improve behavior towards the environment. Education is often linked to environmental behavior, as it is perceived to lead to a greater environmental awareness and change in attitudes. This shift in attitudes and knowledge is thought to improve environmental behavior (Zelenzny 1999). Therefore, many studies focus on altering environmental knowledge and attitudes as a way to alter behavior. One such study, conducted by Jaus, examined the effects of environmental instruction on the attitudes of elementary students regarding the environment, i.e. their attitudes towards conservation, recycling, and the control of pollution. In his experiment, he found that elementary students who had received environmental education scored higher on environmental questionnaires. Furthermore, he found that these positive environmental attitudes were retained after a two year period. Attitudinal shifts can be considered more important than cognitive ones, because attitudes can still remain even if knowledge learned is lost (1984).

Typically, children's attitudes can become fixed by the time they enter high school, therefore it is extremely beneficial to educate about the environment in elementary and middle school. By educating children at a younger age it increases the likelihood that they will grow and mature while retaining pro-environmental attitudes that will encourage them to act in an environmentally responsible attitude. Jaus also found that elementary students, even without undergoing environmental instruction, have a slightly positive attitude towards the environment, specifically recycling, conservation, and pollution control. He argues that minimal environmental instruction can be effective in producing attitudes towards the environment that are highly positive (1984). Strong additionally found that children have a focused concern for the environment. Through a survey of 7-11 year olds she determined that the environment is significant to children, with particular attention paid by the students towards wildlife, plants, and trees. Children gain a basic knowledge and understanding of the environment in their early years of school, which develop into a concern for the protection of the environment and positive environmental attitudes (1998). These studies highlight the importance of fostering positive environmental attitudes in children. It is positive attitudes that will encourage children to behave as environmentally responsible citizens, therefore education that cultivates these attitudes is vital.

Zelenzny conducted a meta-analysis of studies on educational interventions that had the end goal of improving environmental behavior, through methods like recycling, composting, or planting a vegetable garden. For example, some of the studies she examined (Aird & Tomera 1977, Asch and Shore 1975) focused on the effects of classroom instruction on reported or observed environmental behavior. Zelenzny found that all classroom interventions in her study did improve environmental behavior; additionally, like Carrier, she found that actively involving participants produced the strongest effects. Furthermore, the effectiveness of the nine interventions that she surveyed was greater in participants that were younger, and the effect also had a longer duration in the younger participants. While the interventions did have an effect on

adults, it was much smaller than it was for children. She argues that younger participants are more influenced by the educational interventions because they more easily learn new behaviors that are pro-environmental (1999). While her analysis provides good support for environmental education, there are several limitations to this study. The studies that she reviewed were not all of equal quality, due to the fact that they used a variety of research methods and evaluation methods. Furthermore, a large portion of the studies relied on self reported behavior rather than observed behavior. However, regardless of the limitations her study showcases the potential effectiveness of proper environmental education.

A study by Farmer et. al. also demonstrated the effectiveness of nontraditional environmental education. One year after a fourth grade environmental field trip, the majority of students still positively remembered their experiences and had developed a perceived positive attitude towards the environment, as indicated through interviews with the students (2007). Along with having positive effects on students, environmental education can also have positive effects on their parents. Volk and Cheak examined the impact of an environmental education curriculum, known as Investigating and Evaluating Environmental Issues and Actions (IEEIA), on students and their parents. The IEEIA program was established to help students examine local environmental issues in-depth and make decisions about how to resolve these issues. Working in small groups, students selected the issue that they wanted to investigate, planned and conducted their investigations, and attempted to resolve the issue they had selected. They found that students who experienced instruction in the IEEIA program significantly outscored non-IEEIA students in different aspects of critical thinking and literacy associated with the environment. Furthermore, IEEIA students viewed themselves as competent players, and appeared to have feelings of confidence with regard to taking action to reverse environmental problems. Both parents and community members expressed the positive impacts of the program on the confidence and skills of the students, and a large number of adults were involved by the children in community projects relating to the environment (2003).

Similarly, Leeming and Porter found that students enrolled in the Caretaker program, in which they partook in some type of environmentally related activity in school, showed a significantly greater change in environmental attitude than children who were not enrolled in the program. Examples of types of Caretaker programs are recycling initiatives, letter writing campaigns, maintenance of school grounds or flower beds, and "adopting" endangered animals. Although the study was limited by that fact that each class participated in a different activity with an environmental theme, they found that children in grades 1-3 showed more positive attitudes towards the environment than did children in grades 4-7. This association was found regardless of if the children were enrolled in the Caretaker program or not. Moreover, they found that the parents of children enrolled in the Caretaker program reported an increased concern for the environment and greater changes in behavior, on the part of the parents, than did parents whose children were not enrolled in the program. Caretaker parents additionally reported a greater frequency of discussing environmental matters with their children (1997).This study shows that children can perhaps not only directly positively influence the environment through shifts in behaviors and attitudes, but they can also to some extent influence their parents and other community members to act in a more environmentally friendly way. This relationship makes the education of children vital to increasing sustainability, as they have the potential to effectively influence adults.

Impacts of Recycling Education

While there is ample literary evidence that supports the potential effectiveness of environmental education in influencing knowledge and attitudes to shift environmental behavior, the number of studies specifically regarding recycling education is more limited. This is perhaps due to the fact that recycling represents just one environmental issue, out of the plethora that there are today. However, recycling is an important issue for elementary schools, and recycling is one way that students can learn to be more environmentally responsible. Smith et. al found that 3rd-6th graders who took part in a recycling program had greater knowledge and pro-recycling attitudes and behaviors after the program. Recycling attitudes were determined via the use of a six statement questionnaire pertaining to recycling, where the level of student agreement was indicated on a Likert scale. Student recycling behaviors were measured through a self-reported account. Once again, the program in which students actively took a fieldtrip to a landfill resulted in a higher attitudinal and behavioral change than the program in which they remained in the classroom. Smith argues that classroom education changes behavior by first changing knowledge, while fieldtrips and more active forms of education first change attitudes. This study demonstrates that short term educational interventions that are focused on changing specific behaviors, by altering knowledge and attitudes, are potentially effective at impacting behaviors. However, contrary to Leeming and Porter who found that younger students display more pro-environmental attitudes, this study found that older grade school children exhibit more pro-recycling attitude and behavior changes than younger students (Smith et. al 1997). Once again, changing attitudes toward the environment led to a greater and more positive change in environmental behaviors.

Bonnet and Williams also studied children and recycling, and they found that children appear to be very aware and in favor of recycling. These attitudes particularly pertained to the recycling of paper, as there is a very straightforward and logical connection between recycling paper and "saving trees". Bonnet and Williams found that although children, in this case fifth and sixth graders, are aware of the recyclability of other items, such as bottles, cans, and plastics, they were more unsure about how recycling these items helped the environment. Furthermore, they did not have a solid grasp on the underlying purpose of recycling. However, the children did demonstrate high levels of feeling and concern toward the environment (1998). Although the studies specifically about recycling are not as numerous as those involving general environmental education, it has been shown that recycling education programs have the potential to significantly increase knowledge, promote positive attitudes, and increase recycling behaviors in students.

Environmental Concern and Control

Despite the fact that environmental education has demonstrated positive effects on children, there has still been concern about exposing children to environmental issues. As Malkus and Mosser describe, some have believed that making children aware of environmental problems can lead to increased anxiety and depression in children. There is also the fear that receiving this grave information at a young age can make children lose hope about the future, believing that environmental problems are too large for them to solve. However, Malkus and

Musser have argued that children can in fact feel positively about the environment and their role in solving environmental problems. In their study, they found that the environmental concern for first, third, and fifth graders was about the average, with concerns about family members coming to harm and violence/crime ranking higher for all three grades. Overall, environmental concern for these students ranked in the middle of other concerns, but children overall still felt positive about the environment. Despite being concerned about the environment, a large portion of the children were still able to generate ways in which they could help the environment, with children who had greater environmental concern identifying more ways (1997). However, this study was limited by the fact that no specific examples or responses about children's environmental concern were supplied, nor were examples of the children's solutions to these problems given.

In another study by Malkus and Musser, they argued that children who felt more positively about the environment and their role in remedying environmental issues would feel more positively about themselves and the control they have over their lives. They suggested that children who have a high perceived competence and internal locus of control might set higher goals for themselves concerning the environment. Since these types of children have a history of successfully carrying out actions that are necessary to achieve their goals, they are likely to have higher goals for their environmental behaviors and attitudes. In their study, children who possessed an internal locus of control were found to also possess significantly more positive environmental attitude scores. Children who have control over their immediate world are likely to believe that they are able to make a difference in the environment (1993). While children might have concerns about the gravity of environmental problems, this does not mean that they believe that they cannot exert a positive influence on the environment. Thus well designed environmental education can provide children with the skills and knowledge necessary to feel like competent players in environmental issues.

Efforts to Evaluate and Assess Environmental Education Programs

Since the growth of public awareness of environmental problems in the late 1960's, there has come an increase in the number of environmental education programs conducted by educational institutions. However, there has been a little systematic evaluation of the effectiveness of these programs, for example assessing the curriculum materials, gains in student knowledge, teacher effectiveness, and behavioral changes. Out of the 284 elementary and secondary programs studied by Lucko et. al, 49.6 percent reported that they conduct no evaluation of their environmental education programs (1982). It is crucial that systematic evaluation of the effectiveness of environmental education takes places, in order to show its necessity in the school system. As stated by Lucko et. al, "In an era of tightening budgets, documentation that environmental education is of central priority, and not a frill, is required" (1982 pg 8).

According to Smith-Sebasto and Smith, state level coordination of environmental education in Illinois started in 1957. However, there has been little guidance by the state about how to effectively infuse environmental concepts into the curriculum. In their assessment of Illinois K-12 public school teacher's environmental education programs, they examined the preparedness of teachers to infuse environmental concepts into their lessons, teacher's attitudes toward environmental education, and the extent to which each teacher was currently infusing

environmental concepts. Through a random sample of 225 Illinois teachers, Smith-Sebasto found that the barriers to effective programs were similar to the ones identified by Ham and Sewing. By evaluating and assessing the environmental education programs of the teachers being surveyed, Smith-Sebasto found that lack of resources/funding was one of the main reasons for not infusing environmental concepts into the curriculum. Similarly, teachers identified lack of preparation time, lack of class time, and limited knowledge of environmental issues as factors that weakened their environmental programs. A large majority of teachers, 80%, believed that better access to resources would increase the effectiveness of environmental programs. Out of the teachers who were currently teaching environmental concepts, 90% agreed that it is important for teachers to integrate the environment into their lessons and that teachers should help students develop environmental values. However, in contrast to this, 89% reported spending less than 2 hours per week for each subject taught on environmental concepts (1997). This study exhibits the point emphasized by McKenzie-Mohr, that attitudes alone are not enough to illicit change (2011). Though many teachers hold strong attitudes that teachers should educate students about the environment, in reality their behaviors conflict with their attitudes. Therefore, it is important to gain an understanding of the barriers that prevent environmental programs from being implemented effectively. Furthermore, it is important to consistently evaluate and assess environmental education efforts, in order to ensure that they are effective. As demonstrated by Smith-Sebasto, evaluating environmental programs allows barriers and weaknesses to be highlighted.

McBeth and Volk also attempted to survey the effectiveness of environmental education programs. They used a nationally stratified sample of sixth and eighth grade classrooms in their attempts to measure the baseline environmental literacy of students. The results identified that students scored higher for verbal commitment (intention to act) over actual commitment (pro-environmental behavior). The students also scored higher for general environmental feelings than they did for verbal commitments to act. While eighth graders slightly outscored sixth graders on the measures of environmental knowledge and cognitive skills, six graders outscored eighth graders on the measures of general environmental feelings and environmental behaviors, as determined by the Middle School Environmental Literacy Instrument (2010). Unfortunately, there is no benchmark against which this study can be compared. However, this study does suggest that younger students might have environmental attitudes that are moderately high, but like adults, there is a disconnect between reports of actual behaviors to reduce environmental harm and their verbal commitments and feelings.

Summary and Conclusions

From the review of the literature, it is evident that environmental education programs can be a strategy to effectively influence the environmental attitudes and knowledge of children, which can subsequently impact their environmental behaviors. Younger children are important recipients for these types of programs, because they have potentially been shown to have positive attitudes towards the environment, regardless of if they have received education about it. Furthermore, children have formed fewer environmentally damaging behaviors that they must unlearn, creating fewer barriers to changing their behavior. In order to most effectively educate students, multiple learning styles must be taken into consideration, and students should be actively involved. However, education alone is not always enough to change behavior. There are

a variety of barriers that can increase the difficulty of implementing effective environmental education in schools or changing the behavior of students, and it is important that barriers are identified and addressed whenever possible.

Research Design and Methodology

Overview of Research Purpose

My primary goals in this research project were to determine the barriers of effective environmental education and to evaluate how a recycling education program affects the attitudes, behaviors, and knowledge of second and third graders at Fox Creek Elementary School in Bloomington, IL. I used a variety of qualitative and quantitative research methods, including interviews and a survey, to answer the questions: 1)What are the barriers to effective environmental education in Fox Creek Elementary School? 2) What are the effects of a recycling education program on the environmental knowledge, attitudes, and behaviors of select second and third grade students? The Unit 5 School District in McLean County, Illinois, was seeking to implement a more concerted and coordinated effort to increase recycling rates across all of the schools in the district. This research served a key role in identifying the weaknesses of the current recycling program in Fox Creek Elementary, so that these barriers could be addressed.

Overview of Fox Creek Elementary School

Fox Creek Elementary is one of the sixteen elementary school that the Unit 5 School District hosts, enrolling students ages 5-10 years in kindergarten through the fifth grade. Fox Creek had an enrollment of 385 students in 2011 ("McLean County Unit District No. 5"). According to the Illinois School Report Card, in 2010 63.8 percent of enrolled students were white, 15.3 percent were black, 6.2 were Hispanic, 2.5 percent were Asian or Pacific Islander, and 12.1 percent were multi-racial. Furthermore, 95.1 percent of Unit 5 teachers were white, with a further 3 percent black, 1.3 percent Hispanic, and .6 percent Asian or Pacific Islander. Out of the total enrollment, 39.6 percent of the students were considered to be low-income. On average, students received 60 minutes of math, 35 minutes of science, 170 minutes of English and language arts, and 35 minutes of social science per day. Overall, in the 2009-2010 school year 88.2 percent of Fox Creek state test scores met or exceeded the Illinois Learning Standards. This percentage exceeded the overall 76.4 percentage achieved by the state as a whole ("Illinois School Report Card").

Description of Research Design

Conducting my research in Fox Creek was recommended by Jean Harper, a Unit 5 faculty member and a key figure in the coordination of the Unit 5 recycling program. Fox Creek already had a well established recycling program in place, which was an important aspect for my research design. I chose to work with the second and third grade classes, because the Ecology Action Center, an environmental education and outreach center in Normal, Illinois, conducts an educational program in the fourth grade classes of Unit 5. Working with second and third graders

meant that I was reaching grades that did not yet receive a solid waste program, as the fourth graders did, and the students were old enough to be academically capable of grasping the abstract concept of recycling.

In order to accomplish the goals of my research, I first familiarized myself with the Unit 5 School District and Fox Creek Elementary School by reviewing Unit 5 documents and interviewing several Fox Creek teachers. I spoke with Amy Schumacher, a fourth grade teacher and the coordinator of the recycling program in Fox Creek, in order to get a more complete understanding of the development of the recycling program, including its current state, the perceived weaknesses of the current program, and the benefits of it. Mrs. Schumacher then provided me with the contact information for the second and third grade teachers, so that I was able to contact them to identify teachers that were willing to participate in my project. Second grade teacher, Kalilah Muhammad, and third grade teachers, Alicia Birky and Shannon Hedman, agreed to let me work with their classes. These three classes became my "experimental" classes, which would later receive my educational intervention. Through interviews with these teachers, I determined what environmental education efforts are currently taking place in the school, each teacher's perceived barriers to implementing more effective environmental education, and their perceived benefits of the recycling program for the students and the school.

Additionally to gain more information about the most effective ways to educate children, I interviewed Kris Hall, the Environmental Educator for the Ecology Action Center in Normal, Illinois. For many years she was an educator at the Miller Park Zoo in Bloomington, and now in her current role at the EAC she provides environmental education programs to nearly all of the fourth grade classes in the Unit 5 School District. Her experience in environmental education has given her an understanding of the difficulties and successes of educating children about the environment in Bloomington-Normal. Her insights and advice were extremely valuable in the creation of my recycling education program. I chose to use the qualitative research method of interviews with Mrs. Hall and the teachers, because I felt that the interactive nature of interviews would strengthen our relationships, allowing them to feel comfortable with me. Their continued cooperation was vital for the success for the project, therefore it was important for me to build a solid and personal relationship from the start. Furthermore, as Legard, Keegan, and Ward describe, interviews provide for a deeper understanding of the interviewee's thoughts. Interviews also allow the researcher to "explore fully all the factors that underpin participants' answers: reasons, feelings, opinions, and beliefs" (Legard et. al pg 143).

In addition to the qualitative portion of my project, I collected quantitative data to establish a baseline of recycling attitudes, knowledge, and behaviors of students. In order to gain an understanding of student's recycling behaviors, I monitored the trash and recycling output of the classrooms that I was working with, starting two weeks before I began conducting educational programs. I weighed the recycling and the trash on a weekly basis, and conducted audits to determine if the waste stream was contaminated with recyclables and vice versa. To determine a baseline of student's environmental and recycling knowledge and attitudes I worked in cooperation with Jean Harper. As part of the overall Unit 5 effort to increase recycling rates, I assisted Jean in the development and analysis of a survey for the second and third graders to determine the factors that are listed above. The survey consisted of open-ended, multiple choice, and Likert scale questions, and was designed to be simple enough for the teacher's to administer

and the students to understand. I chose to use a survey, because time constraints and Illinois Wesleyan University's Institutional Review Board regulations made it difficult for me to personally interview the students. By using a survey, I was able to collect data from every student in all of the classes I was working with. The survey was administered to each student in my three experimental classrooms, plus the students in Mrs. Frye's second grade class(name has been changed for anonymity). Her class served as a control group, receiving the same survey and waste stream monitoring, but without the educational intervention.

With this quantitative baseline for comparison established, I then developed an educational program to last the length of one class period, forty minutes, on recycling. The teachers emphasized that conducting a program that lasted longer than this would likely result in a loss of the students' attention and focus. I relied heavily on the use of knowledge gained through my literature review and interviews in the development of this program. Due to personal experience working with children and information learned through my research, I designed my educational program to be as interactive as possible. The students were asked questions in order to get them to critically think about the issue of recycling to reduce waste. Whenever possible I used tangible props and examples to enforce the abstract concepts that I was teaching, for example having the students weigh out 4.5 pounds of trash (the amount that each American produces per day). I made all attempts to relate the information that I was presenting to things that were relevant to the students, for example using the Disney movie Wall-E to illustrate my point. I additionally played a game with the students to test their knowledge in a fun and interactive way (see Appendix D for complete lesson plan). The same survey was administered to all four classes again after the educational program was conducted, including the control classroom which did not receive the educational program. All classes were additionally subject to further monitoring of their waste stream.

Ethical Concerns

My concerns regarding this research stemmed from working with children, who are a sensitive population. By not approaching my research properly or interacting with the children in an appropriate manner, I ran the risk of making them apathetic towards the environment. Additionally my interviews with the teachers, if improperly conducted, could have made them feel like they were being subjected to judgment and criticism. In order to protect the children's privacy, I was required by the IWU IRB to work under the direct supervision of the teachers and Jean Harper, following the code of ethics set forth by Fox Creek Elementary and Unit 5.

Summary of Research Findings

Examination of the Fox Creek Recycling Program

An interview with Amy Schumacher, a fourth grade teacher and the coordinator of the recycling program in Fox Creek, revealed a better understanding of the recycling program at Fox

Creek Elementary School. According to Mrs. Schumacher, in 2008 Fox Creek purchased blue recycling bins for every classroom, in addition to four 95 gallon bins to collect all of the recycling for pick up. Last year, 95 gallon bins were purchased as the size of the recycling program increased. One of the initial barriers to starting the program was collecting the money needed to purchase all of the containers. In order to overcome this barrier, the Fox Creek Student Council purchased half of the bins, while the school general account purchased the other half. After the program was started, teachers were forgetting to empty their recycling, so the student council was enlisted to empty all of the bins. Every classroom, in addition to the teacher's lounge and office, has an individual recycling bin. The bins are picked up once a week by student council members, after a reminder is sent out to the school staff. Furthermore, teachers can request that their bins get emptied additional times throughout the week, if they are filled up.

Mrs. Schumacher also identified several limitations to the current recycling program. Currently, there is no recycling bin in the lunchroom, due to a variety of potential logistical issues. It would be hard to ensure that empty milk cartons and food containers were properly rinsed out before being recycled, as any food residue could contaminate the recycling. Furthermore, the kitchen staff throws out a large amount of recyclables, including boxes; however, they often lack the time to properly break down boxes or clean containers. According to Mrs. Schumacher, one of the main benefits of the program is that, "We are all recycling together and trying to do our part! Teaching students how important it is to do our part each and every day really does make a difference." Although she emphasized that seeing six 95 gallon bins filled up with recycling every week was amazing, she also wants the school to reduce the amount of garbage that it produces.

Mrs. Birky, Mrs. Hedman, and Mrs. Muhammad, the teachers of the classrooms in which I conducted an educational program, all indicated that they were happy with the current recycling program. Before, all recyclables had to be brought to a central location instead of being picked up from the classrooms, so less was recycled. The teachers appreciate the simplicity of the program and that they are able to recycle all materials. As Mrs. Hedman stated, the recycling "is magically taken away". While she was happy with the program, Mrs. Birky identified that the lack of time to rinse out snack containers and other recyclable items was a barrier to increasing the efficiency of the program.

Effective Strategies for Environmental Education

Kris Hall, the environmental educator for the Ecology Action Center, was able to further enlighten me about environmental education in elementary schools. In her opinion, environmental concepts are really abstract, which makes it difficult for children to fully grasp them. In order for children to understand, they need to be guided to think it through. She emphasized that just telling children something is not effective, because it does not engage them and make them think. Asking pointed questions to make them come up with the answer is much more effective. Similarly, it is important to use interactive activities to reinforce any concepts that you are teaching. Since there is no immediate reward for recycling, she explained that is important to model the expected behavior. Having the children recycle is the first step, then their knowledge can be built upon and expanded. Being a "cheerleader" is also important when working with younger children, as they need to understand when they do good things.

Environmental and Recycling Education in Fox Creek

All three teachers interviewed, Mrs. Birky, Mrs. Hedman, and Mrs. Muhammad, indicated that students do not receive environmental education except in the science curriculum. Environmental education was typically limited to first hand matters, such as energy conservation and recycling. Specifically regarding recycling, students in all of the classes learned only the basics. In many cases, their knowledge of recycling was limited to what versus what cannot be recycled, with a general lack of complete understanding of the importance of recycling. Furthermore, none of the teachers reported receiving continued education from the administration about the recycling program. All of the teachers believe that it is important to educate children about the environment; however, they all also emphasized that there is a lack of time to do so. According to Mrs. Hedman, the limits on time due to curriculum requirements make it difficult to incorporate more recycling education into class lessons. She explained how she builds environmental education into other activities, but there is no time for a block of environmental education every week. Mrs. Muhammad agreed, explaining that due to standardized testing there is an emphasis on teaching reading and math, which made it difficult to teach about the environment as often as liked.

Although lack of time due to curriculum requirements is a major barrier to implementing environmental education in Fox Creek, all of the teachers stressed that they believe environmental education is important for students. Teaching the students about recycling makes them into responsible citizens, teaches them how to take care of the environment, and makes them aware of the consequences of misusing the environment. The teachers also indicated that not all of the students are taught about the environment at home, so teaching them about it in school helps them to develop earth-friendly habits. According to Mrs. Birky, "This kind of stuff sticks with them, and they end up making the good choices on their own."

Student Knowledge of Recycling

Pre-Educational Intervention Survey Results

As previously described, the students at Fox Creek do not receive a large amount of education about recycling in school, mainly due to the lack of time. All of the teachers believed that their students had a relatively solid grasp on knowing what could versus what could not be recycled; however, the teachers overall did not think that their students had a complete grasp on what recycling was and why it was important. Administering the recycling survey allowed me to approximately determine the general recycling knowledge of the students in each class. In one of the survey questions, students were given a list of 12 commonly thrown away items and asked to identify which ones were recyclable. Out of the five recyclable items and seven non-recyclable items on the survey (see Appendix B), students in Mrs. Birky's class on average correctly identified 3.95 recyclable items and incorrectly identified 1 item, before they received the educational program. On average, Mrs. Hedman's class correctly identified 4.1 items and incorrectly identified 1 item, while Mrs. Muhammad's class correctly identified 3.78 items and incorrectly identified 1.52 items. The first time they took the survey, Mrs. Frye's class, the control group, correctly identified 4.29 items and incorrectly identified 1.12 items (see Table 1).

In addition to being asked to identify recyclable items, students were asked two open-ended questions in order to determine their knowledge of what recycling is. Students were asked: 1) What is recycling 2) How does recycling help the Earth? The answers to these questions were then grouped into different categories, based on the theme of the answer. In Mrs. Birky's class, the most common answer, when students were asked what recycling is, was something that is helpful or good for the Earth. In Mrs. Hedman's class, students most frequently explained recycling as two things: a blue bin that certain materials (glass, plastic, paper) are put in to or materials that are reused and made into other things. Mrs. Muhammad's and Mrs. Frye's students largely identified recycling as a blue bin for certain materials (see Figure 14 in Appendix C). When asked how recycling helped the Earth, the largest number of students in all of the classes said by making it clean and healthy. (see Figure 15 in Appendix C)

Post-Educational Intervention Survey Results

After I conducted the recycling educational program, the number of items correctly identified by Mrs. Birky's class increased from 3.95 to 4.29, and the number of incorrectly identified items increased slightly from 1 to 1.12. In Mrs. Hedman's class, the number of items correctly identified decreased slightly from 4.1 to 4.05, while the number of items incorrectly identified decreased from 1 to .95. Mrs. Muhammad's students correctly identified 3.71 items, a slight decrease from 3.78, and they incorrectly identified 1.33 items, which was a decrease from 1.52. When Mrs. Frye's class took the survey the second time, students correctly identified 4.48 items and incorrectly identified 1.61 items.

When asked what recycling was on the post-educational intervention survey, the highest percentage of Mrs. Birky's class stated that recycling was picking up trash/cleaning the Earth. The most common answers in Mrs. Hedman's class were a blue bin that certain materials are put in to and something that is helpful/good for the Earth. The most common answer in Mrs. Muhammad's class was something that is reused and made into other materials. In Mrs. Frye's class, the control class, the highest number of students provided answers that were categorized as "other", meaning that they did not fit into any common groups. Again, the most popular answer for how recycling helps the Earth in all classes was that is keeps it clean and healthy, though the percentage of students who answered that it conserves or protects natural resources increased in all classes.

Table 1: Student Knowledge of Recyclability of Materials

Class **~ Indicates Experimental Classroom** **+Indicates Control Classroom**	**Average # Survey Items Correctly Identified as Recyclable Pre-Ed N=out of 5**	**Average # Survey Items Correctly Identified as Recyclable Post-Ed (change from pre-ed to post-ed)**	**Average # Survey Items Incorrectly Identified as Recyclable Pre-Ed N= out of 7**	**Average # Survey Items Incorrectly Identified as Recyclable Post-Ed (change from pre-ed to post-ed)**
Mrs. Birky~	**3.95**	**4.45(+.50)**	**1**	**1**
Mrs. Hedman~	**4.1**	**4.05(-.05)**	**1**	**.95 (-.05)**
Mrs. Muhammad~	**3.78**	**3.71(-.07)**	**1.52**	**1.33(-.19)**
Mrs. Frye+	**4.29**	**4.48(+.19)**	**1.12**	**1.61(+.49)**

Attitudes of Students Regarding Recycling and the Environment

Pre-Educational Intervention Results

Through the survey, students were asked questions that were meant to determine their attitudes towards recycling and the environment. In one question, students were asked to select the one option out of four that was the most important to them. In each of the three experimental classrooms and the control classroom, the majority of students selected the health of the Earth as the item that was most important to them, above happiness, having a lot of friends, and money (see Figure 1 in Appendix C). Students were then asked what they believed the best way to help the Earth was, and in each of the classes the majority of students selected picking up trash and recycling. This option was chosen by the largest number of students over teaching friends and family, learning about it in school, or ignoring it. In the experimental classrooms, the second most commonly selected option was teaching friends or family about the earth (see Figure 2 in Appendix C). In the next question, students were asked to identify the reason that they recycled. The most common reason identified by the students in all classes for recycling was that they wanted to help the Earth, with other options being encouragement by friends, encouragement by teachers or family members, or undecided (see Figure 3 in Appendix C). Additionally, in all of the classes the majority of students indicated that they believed recycling is fun and that they felt good when they recycled (see Figures 4 & 5 in Appendix C).

In the next portion of the survey, students were provided with questions based on a 5 point Likert scale, with answers ranging from strongly disagree to strongly agree. Students in all classes on average strongly agreed that people should recycle (see Figure 6 in Appendix C). Though results were more varied for the remaining Likert questions, the largest portion of the classes strongly agreed that they would tell people to recycle, if they observed someone who was not recycling (see Figure 7 in Appendix C). Students also strongly agreed that they could help to fix the Earth's problems, and they additionally strongly agreed that their actions could help or harm the Earth (see Figure 8 & 9 in Appendix C). Lastly, the large majority of all of the classes strongly agreed that recycling helps to keep the Earth healthy (see Figure 10 in Appendix C).

Post-Educational Intervention Results

After the recycling educational program was conducted, students in the experimental classrooms again selected the Earth as the item that was most important to them; however, the percentage of students who selected this option varied for each class. This pattern also held true for students in the control classroom when they took the survey a second time (see Figure 1 in Appendix C). Furthermore, students in all classes again selected picking up trash and recycling as the best way to help the earth. However, in the experimental classrooms the percentage of students that selected teaching friends or family about the Earth in school increased, while the percentage of students who selected learning about the Earth in school increased in the control classroom (see Figure 2 in Appendix C). Students in the experimental classrooms and the control classroom again selected wanting to help the Earth as their main reason for recycling (see Figure 3 in Appendix C). Furthermore, the majority of the students indicated that they believe recycling is fun, and that they feel good when they recycle (see Figures 4 & 5 in Appendix C).

When answering the Likert scale questions after the educational intervention, students in all classes indicated that they strongly agree that people should recycle (see Figure 6 in Appendix C). Again, students in all of the classes indicated that they strongly agree that they would tell a non-recycler to recycle, and that they can help to fix the Earth's problems, though again the results were more varied (see Figure 7 & 8 in Appendix C). Similarly, the students strongly agreed that they their actions could help or harm the Earth and that recycling helps to keep the Earth healthy (see Figures 9 & 10 in Appendix C).

Student Recycling Behaviors

Pre-Educational Intervention Results

The final questions on the recycling survey were meant to determine how often students recycle and teach others about recycling. Typically, around half of each class identified that they recycle always or almost always at home, with about ten to twenty percent of each class indicating that they never recycle at home (see Figure 11 in Appendix C). About sixty percent of each class identified that they recycle in school always or almost always, with the second most common answer being sometimes (see Figure 12 in Appendix C). The results for how often students teach others about recycling varied by class. In Mrs. Birky's class, students most commonly answered "sometimes". The most common answer from Mrs. Hedman's class was "never/not a lot", and in Mrs. Muhammad's class it was "always/most of the time" (see Figure 12 in Appendix C). In the control classroom, the largest portion of Mrs. Frye's students answered "sometimes".

Post-Educational Intervention Results

The results after the educational intervention were relatively consistent with those gathered before the recycling program was conducted. Again, about half of each of the four classes identified that they always or almost always recycle at home, with about ten to twenty percent indicating that they do not recycle at home (see Figure 11 in Appendix C). Approximately sixty percent of each class indicated that they always or almost always recycle in school; however, the percentage of students that indicated that they never recycle at school increased in some classes, although only slightly (see Figure 12 in Appendix C). When asked how often they teach others about recycling, the most common answer in Mrs. Birky's class was "always or most of the time", changing from the most common answer of "sometimes" before the program was conducted. In Mrs. Hedman's class, the most common answer changed from "never/not a lot" to "sometimes". In Mrs. Muhammad's class, the most selected answer remained "always or most of the time", and the answer of "sometimes" was the most prevalent in Mrs. Frye's class when the control students took the survey again.

Results of Waste Stream Monitoring

Though monitoring of the waste stream in individual classrooms provided no clear pattern in terms of the amount of materials recycled versus thrown away, it did reveal some common sources of contamination. Non-recyclable items that were often found in the recycling

bins included candy wrappers, used tissues, plastic baggies, and pencil shavings (see Figure 16 in Appendix C). Furthermore, recyclable paper scraps were commonly found in the trash cans, with larger items such as Kleenex boxes occasionally found as well. Although it was not completely true every week, after the educational program was conducted in the experimental classrooms less contamination was found in the recycling bins. Small amounts of recyclables were still found in the trash; however, typically the recycling bins were free of the materials that had commonly been sources of contamination before the program was conducted.

Discussion and Limitations

Student Knowledge of Recycling

The results of my quantitative pre/post test survey seem to support the knowledge gained from interviews with the Fox Creek Elementary School teachers. The teachers reported that the main extent of their student's knowledge regarding recycling surrounded what versus what cannot be recycled. The average number of recyclable items correctly identified for the four classes before the educational intervention was 4.03 out of 5, which exhibits that the students do indeed have a good grasp on what items can be recycled. Furthermore, on average students only incorrectly identified 1.16 items on the survey. After the recycling program was conducted, the total average number of recyclable items correctly identified increased to 4.17 out of 5, while the number incorrectly identified slightly increased to 1.22. Although monitoring of the waste stream revealed that there were sources of contamination found in the recycling and the trash, the actual amount of the contamination was small in relation to the whole. Additionally, the amount of contamination in the recycling seemed to decrease after the educational programs were conducted, although small amounts of recyclables were still commonly found in the trash.

While my recycling survey and monitoring of the waste stream provided results that seem to be supported by information gained through interviews, there were several limitations. One limitation of this portion of my research was that it tested student's ability to recognize recyclable items, instead of being able to produce them from memory. Since some students have difficulty with writing, it was necessary to provide a list of items to choose from, in order to make the survey easy enough for the students to take without becoming stressed. However, having students produce a list of recyclable items from memory would have provided a better and more complete understanding of children's recycling knowledge. Furthermore, when monitoring the waste stream in each classroom, I was only able to examine one day's worth of trash, instead of the whole week's worth. While the recycling was only emptied once a week, trash was emptied every day in order to avoid attracting flies or causing an unpleasant smell from the student's food scraps. If I had been able to examine an entire week's worth of trash, it is possible that I would have seen more recyclable materials that were incorrectly placed into the garbage.

Perhaps the most valuable portion of the survey was the open-ended questions, where students were asked what recycling is and how it helps the Earth. It was clear from the pre-educational intervention surveys that the majority of students did not have a clear grasp of what exactly recycling is. Students most commonly explained it as a blue bin that certain materials are

put in, or as something that is beneficial to the Earth. Unfortunately, the results for the question regarding what recycling is were too varied to draw many conclusions from. However, all of the teachers of the experimental classrooms indicated that after the educational program students were better able to put into words what recycling is. It is possible that the design of the survey was not sensitive enough to capture the changes in student knowledge of what recycling is. While the actual number of students in each experimental classroom that correctly explained what recycling is increased, the percentages might not have changed correspondingly. It was common for the number of students in each class who took the survey to be different from pre-test to post-test. Therefore, these different response numbers could have skewed the resulting percentages. While recycling was most commonly identified before and after the educational program as "helping the Earth by keeping it clean and healthy", the percentage of students who answered that it "conserves natural resources" increased in all of the classrooms.

Attitudes of Students Regarding the Environment and Recycling

The findings of my research generally support my review of the literature and the information provided by the teachers. As previously described, Jaus (1984) and Leeming and Porter (1997) found in their studies that young children typically have positive attitudes towards the environment, even without education. The results of my survey indicate that the students do have a positive view of the environment and want to help the Earth. The three teachers of the experimental classrooms indicated that their students are concerned about the environment, at least to some degree. Mrs. Hedman indicated that her students are still young enough to not want to do things that "hurt the Earth", though as they get older they lose some of this respect. Mrs. Birky explained that students treat the environment with as much care as they know how, given what they learn at home and in school. The results of many of the questions, such as why the students recycle, if they think people should recycle, and if they think recycling helps the Earth, were expected given what they are taught in school.

Although these results are supported by the literature regarding similar topics, there were several limitations to my study. Due to IRB regulations, it was more practical and efficient to administer the survey through a Unit 5 faculty member, as I would have needed consent forms signed by the guardians of every student in order to work directly with them. Because I was working with such a large number of students, I decided that obtaining signed consent from the guardians of each student was too complicated, given the short time frame that I had to work in. Since I chose to avoid directly interviewing students, I had to rely on self-reported behaviors and attitudes, which are not as strong as observed behaviors and attitudes. Given that the students are taught in school that recycling is important, they already know that it is a socially encouraged behavior. It is likely that the students answered positively to the majority of the questions because they were aware that pro-recycling behaviors and attitudes were socially preferred. While the students may in fact feel positively about recycling and the environment, the strength of their answers might have been due to a desire to please their teachers or me.

For example, when asked which was the most important to them, more than eighty percent of every class selected the health of the Earth over their happiness, having friends, and money. While it is possible that this was the most important to the students, my interviews with the teachers made me suspect that the children were just attempting to please their teachers with

their answers. There are a range of socioeconomic statuses in Fox Creek Elementary, and the teachers all indicated that the home lives of certain students, particularly ones from a lower socioeconomic background, might not always support pro-environmental attitudes. For example, Mrs. Hedman explained that many students have "bigger fish to fry", so while they are concerned about the environment, it might not always be their top priority. Additionally, Mrs. Birky emphasized that what students learn in school about the environment and what is good for the environment might not always be supported by their home lives.

Furthermore, the tool that I used to assess the children's attitudes, the survey, also had limitations based on the population that I was working with. The students lack the academic capacity to answer an entirely open-ended survey, which would have provided a more objective account of their attitudes and beliefs towards recycling. However, since students are still learning how to better their reading and writing, it was necessary that I use simple language and questions that they could select answers to. Providing pre-selected answers limited the student's ability to express their thoughts, as they only had the option to select an answer that I had provided. Similarly, given the need for a simple survey, the length of the survey had to be shortened, which limited its scope. Due to the limited scope and simplistic answers, this survey was not sensitive enough to capture small changes in the knowledge, attitudes, and behaviors of the students. Since the majority of students answered a large portion of the questions positively before they received the recycling education program, it was difficult to detect the small changes, as the students continued to answer positively after the educational intervention. Furthermore, some of the questions were framed slightly positively, which could have indicated to students that it was desirable for them to answer affirmatively. All of the experimental classroom teachers had explained to their students that I was going to teach them about recycling. Therefore, it is very likely that the students understood that I believe recycling is important, which increased the likelihood that they answered affirmatively in attempts to please me.

The results of the survey were further complicated by the anonymous nature. While I reported the results in percentages to remain consistent, the actual number of students who took the survey in each class varied for each time the survey was taken. Since the surveys were taken anonymously, I was unable to determine if students who were absent the day that the recycling program was conducted were taking the post-educational intervention survey. Similarly, I was unable to determine if all of the students who took the pre-educational intervention survey took the survey again after the educational program, and vice versa. It is possible that the results were skewed by students who took the survey without being present for the educational program or by students who only took the survey once, which would have not registered any changes. Another limitation of my survey instrument was that it was not pre-tested. Though it was looked over and revised by Jean Harper, who works with elementary students, it was not tested on a sample of students before being administered to all of the classes. Although the teachers and Jean Harper indicated that the level and material of the survey was appropriate, pre-testing it could have provided guidance about the flow and placement of questions.

Student Recycling Behaviors

Results to the questions on the survey regarding the recycling behaviors of students were more varied, which was expected given the information that I learned through interviews. Since

there is a high range of demographics in Fox Creek Elementary, as previously described, there is also a high range of reported environmental behaviors practiced at home. About fifty percent of each class indicated that they recycle only "sometimes" at home or else "never". These percentages supported the information provided by teachers, although they were slightly higher than expected. Mrs. Hedman estimated that about fifty percent of her students recycled at home, and Mrs. Muhammad estimated that between twenty-five and fifty-percent of her students recycled at home. Once again, these results were limited by the use of self-reported instead of actual observed measures. This portion of my research design could have been strengthened by surveying the parents of each student, to see how many homes recycled. However, this would have been difficult due to time constraints and the need to obtain every child's parental consent to fulfill IRB requirements. It would have also been beneficial to observe each classroom during the school day, to see how students recycle when they are at school.

Recommendations

As previously stated, the purpose of this research was to answering the following questions: 1)What are the barriers to effective environmental education in Fox Creek Elementary School? 2) What are the effects of a recycling education program on the environmental knowledge, attitudes, and behaviors of select second and third grade students? My research at Fox Creek Elementary School and literature review have indicated that one of the main reasons that environmental education is not largely implemented in the classroom is because of barriers, mainly a lack of time due to various factors. Teachers have stressed that due to curriculum requirements to meet state requirements for standardized testing, there is little time to add environmental education into the existing curriculum. Since environmental education is multidisciplinary, incorporating environmental information into other subjects, besides science, can help to give students more of an exposure to the environment. Environmental information can be used as the foundation for example problems and illustrated points in subjects such as math, social studies, and English. Teachers should incorporate environmental education into other subjects to help to ensure that their students gain an awareness of the environment, without the teachers needing to overhaul their curricula.

Time is additionally a barrier for environmental education, because it takes a good deal of time to create lesson plans and develop classroom materials. In order to overcome this, it would be beneficial for Fox Creek to create a library of environmental and recycling instructional materials, specific for each grade. These materials could be borrowed from and shared with other Unit 5 schools, so that teachers would be able to access the resources necessary to implement environmental lesson, without having to expend time in creating all of them from scratch. In my research, I found an extensive amount of environmental curriculum guides and lesson plans created by a variety of state organizations and non-governmental organizations. A listing of these resources could be compiled, so that teachers would have access to resources from many different organizations.

In Fox Creek there is currently a lack of continued education for the teachers, regarding environmental matters. In-service workshops should be provided for teachers, as they could be

extremely beneficial in providing teachers with up-to-date information regarding environmental matters and the most effective ways to teach this information to their students. These workshops could also help to ensure that teachers who do not have a background in science have the information necessary to incorporate environmental education into their curricula. Conferences or workshops for Unit 5, as a whole, could additionally help to facilitate the spread of ideas, information, and effective teaching strategies among teachers through a focused venue. Furthermore, due to the range of socioeconomic statuses in Unit 5, one cannot be sure that students are educated about the environment at home. Since it is important that students are informed about their impact on the environment, the schools should make every effort to educate students. Incorporating more environmentally related field-trips, projects, and assemblies are all ways that schools can emphasize the importance of the environment to the students. The school should conduct more research on the most effective education strategies and how to successfully incorporate them into a classroom curriculum.

Conclusion

As the condition of our environment continues to worsen, it is important that our youth are educated about their impact on the environment and how they can act sustainability in today's society. The young generations of today will be the ones who in the future inherit the environmental problems that have been created, therefore it is vital that they are equipped with the knowledge and attitudes needed to make the necessary changes. Both the archival literature and my research have indicated that young children have a positive view of the environment and that they are concerned with its well-being. Students should be actively engaged in their education and informed about their role in the natural world. Since children have fewer negative environmental behaviors to unlearn and have a longer time through which their behaviors will impact the environment, they represent a key population for environmental education. In order to more effectively educate children about the environment, it is vital that the barriers to environmental education are identified and understood, so that they might be overcome. For example, time constraints due to curriculum requirements have made it difficult to implement environmental education in the classroom. Furthermore, education alone can be limited as a strategy, and it is these limitations that must be addressed. Fox Creek Elementary and the Unit 5 School District in McLean County, Illinois should make a concerted effort to incorporate environmental education into the curriculum. Teachers should receive continued education, so that they are better equipped to effectively educate their students. Furthermore, they should be provided with a variety of educational resources, so that they have the materials necessary to implement environmental education under time constraints and curriculum requirements. Environmental themes should be incorporated into the lessons of other subjects, and students should be actively taught about the environment through field trips and projects. It is my hope that my study has demonstrated the importance of environmental education for children and provided ways for Fox Creek Elementary and the Unit 5 School District to successfully incorporate environmental education.

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Appendix A
Interview Questions Guide

Interview Questions for Fox Creek Elementary School Teachers: Mrs. Muhammad, Mrs. Birky, and Mrs. Hedman

What is the current state of the recycling program?
What are some of the barriers to recycling in your school?
How do you think the recycling program can be improved?
Do your students learn about and recycle at home?
What attitudes do your students have about recycling?
What type of education do teachers receive about the recycling program?
What type of recycling education do your students receive?
What type of environmental education do your students receive?
What attitudes and feelings do your students have about the environment?
What are your opinions on environmental education for elementary school students?
What are some barriers to environmental education in your classroom?
Do you think environmental education is beneficial to children? How?
What attitudes and feelings do you have about the environment?

Interview Questions for Fox Creek Recycling Coordinator: Mrs. Schumacher

When was the recycling program implemented at Fox Creek?
Were there any barriers to getting it in place, and how were these barriers overcome?
Please give a general overview of the recycling program and how it works.
What are the benefits of the recycling program?

Interview Questions for Ecology Action Center Environmental Educator: Kris Hall

What type of environmental programs do you currently give in school, and what classes receive them?
What strategies are most effective in your programs?
What are some barriers to environmental education?
Do you think elementary students have a full grasp on environmental concepts?
What are your opinions on the environmental education that students receive in school?
What types of activities have you found to be the most effective?
How environmentally aware do you think the students in Unit 5 are?

Appendix B
Student Recycling Survey

Directions: Answer the following questions as best as you can. Remember: There is NO right or wrong answer.

1) What is recycling? Do you think it is important?

2) Circle all of the things that can be recycled.

cans	plastics bottles	pencil shavings	old markers
candy wrappers	cardboard	glass bottles	used tissues
apple cores	paper	orange peels	empty chip bags

3) How does recycling help the earth?

Directions: Circle one answer for each question.

1) Which is the most important to you?
A. Money
B. Being happy
C. The Earth being healthy
D. Having a lot of friends

2) What is the best way to help the earth?
A. Teach your friends or family about it.
B. Pick up trash and recycling.
C. Ignore the earth.
D. Learn about the earth in school.

3) Why do you recycle?
A. I want to help the earth.
B. My parents or my teacher make me recycle.
C. My friends tell me to recycle.
D. I don't know why.

4) Do you think recycling is fun?
A. Yes
B. No

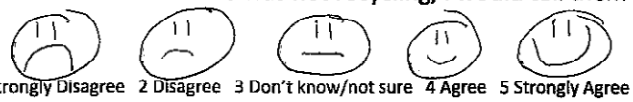
5) Do you feel good when you recycle?
A. Yes
B. No

Directions: Circle one answer for each question.

1) People should recycle.

1 Strongly Disagree 2 Disagree 3 Don't know/not sure 4 Agree 5 Strongly Agree

2) If I saw someone who was not recycling, I would tell them to recycle.



1 Strongly Disagree 2 Disagree 3 Don't know/not sure 4 Agree 5 Strongly Agree

3) I can help to fix earth's problems.

1 Strongly Disagree 2 Disagree 3 Don't know/not sure 4 Agree 5 Strongly Agree

4) What I do can help the earth or harm it.

1 Strongly Disagree 2 Disagree 3 Don't know/not sure 4 Agree 5 Strongly Agree

5) Recycling helps to keep the earth healthy.

1 Strongly Disagree 2 Disagree 3 Don't know/not sure 4 Agree 5 Strongly Agree

1) How often do you recycle at home?
A. Never or not a lot
B. Sometimes
C. Always or most of the time

2) How often do you recycle at school?
A. Never or not a lot
B. Sometimes
C. Always or most of the time

3) How often do you teach others about recycling?
A. Never or not a lot
B. Sometimes
C. Always or most of the time

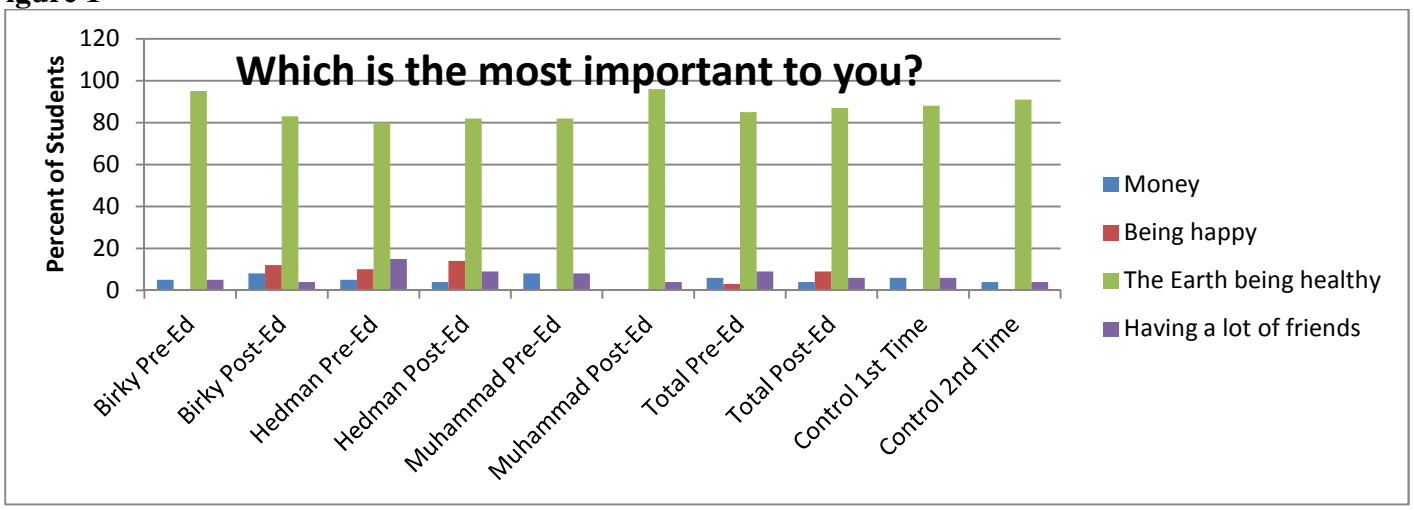
Appendix C
Results from Student Recycling Survey

Note: These results are from a recycling survey that was administered to four classes in Fox Creek Elementary School. The total number of students responding in each classroom varies. The percentages are approximate, and totals might be greater or less than 100%, due to lack of or multiple responses by students for each question. "Pre-ed" indicates results before the recycling education program was conducted, and "post-ed" indicates results after the program was conducted.

Classroom Key

Teacher Name ~ Indicates Experimental Classroom + Indicates Control Classroom	**Grade Level**
Mrs. Birky~	3rd
Mrs. Hedman~	3rd
Mrs. Muhammad~	2nd
Mrs. Frye+	2nd

Figure 1



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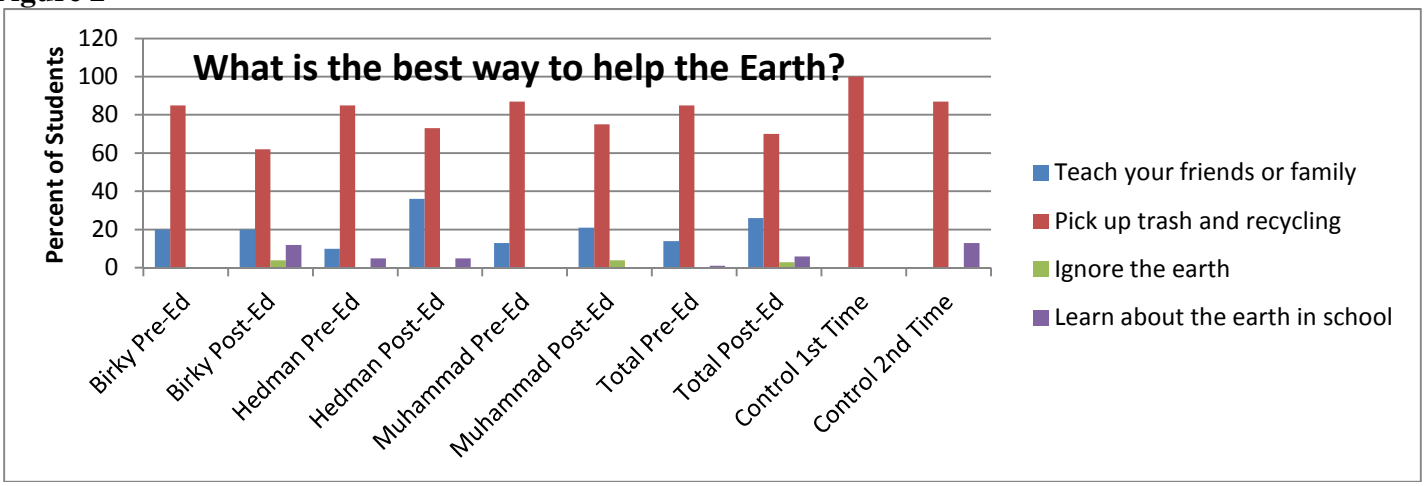

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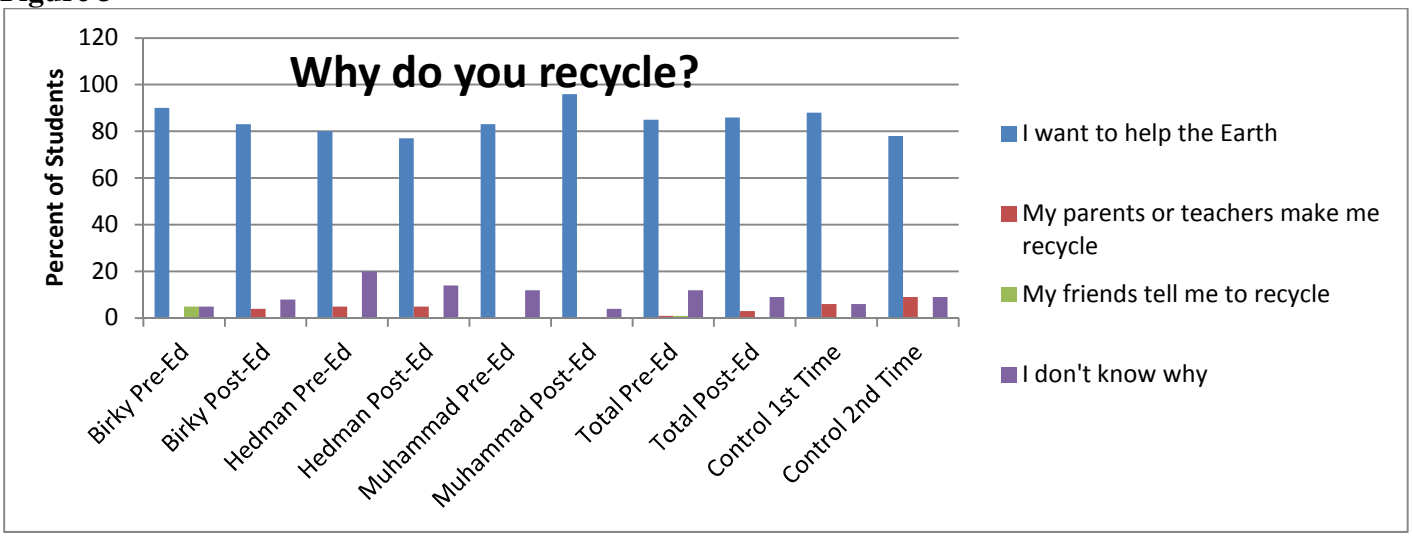

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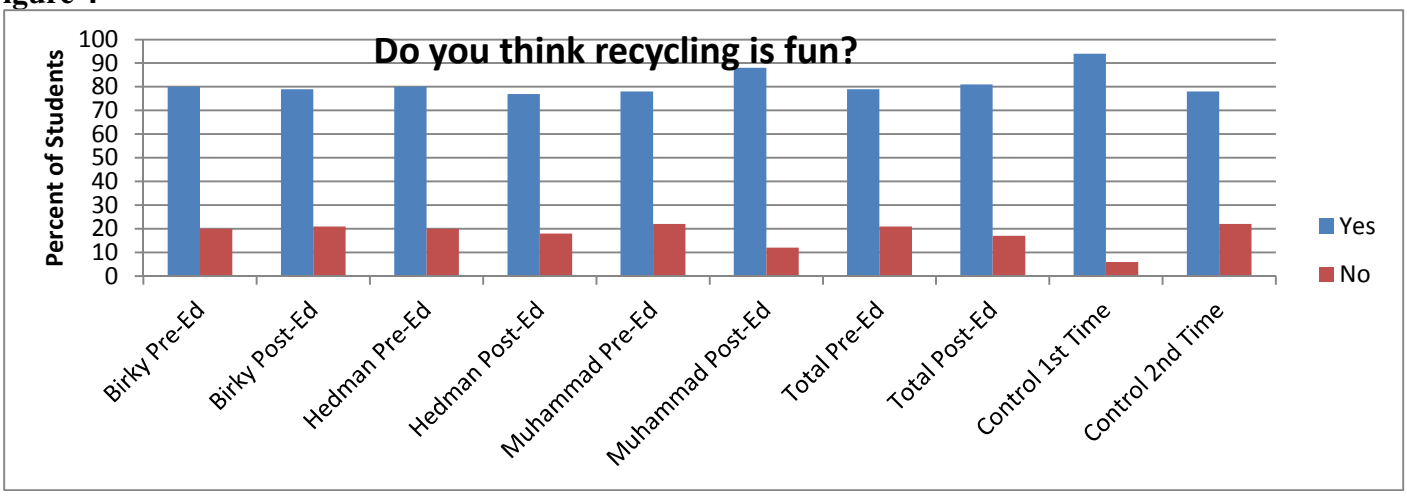

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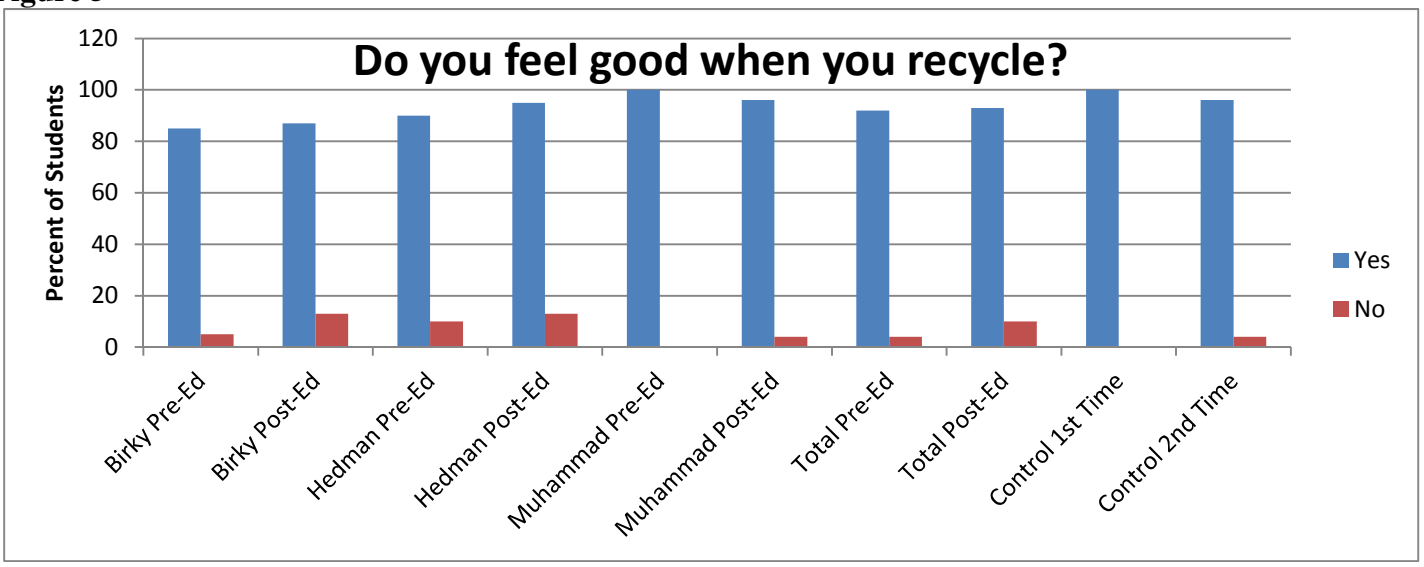

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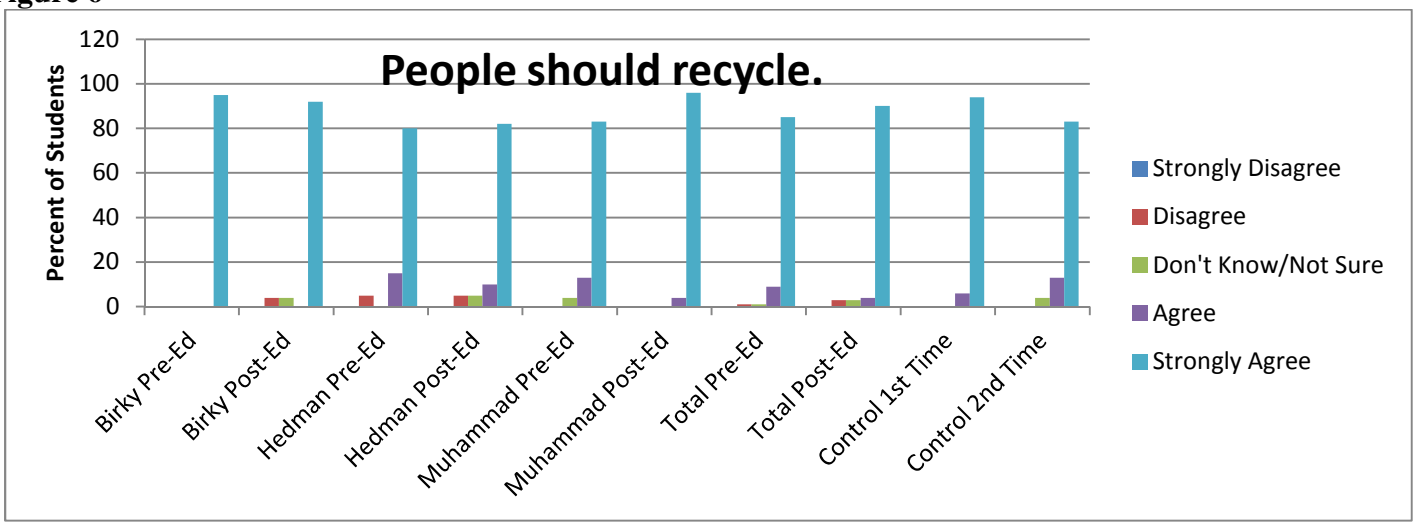

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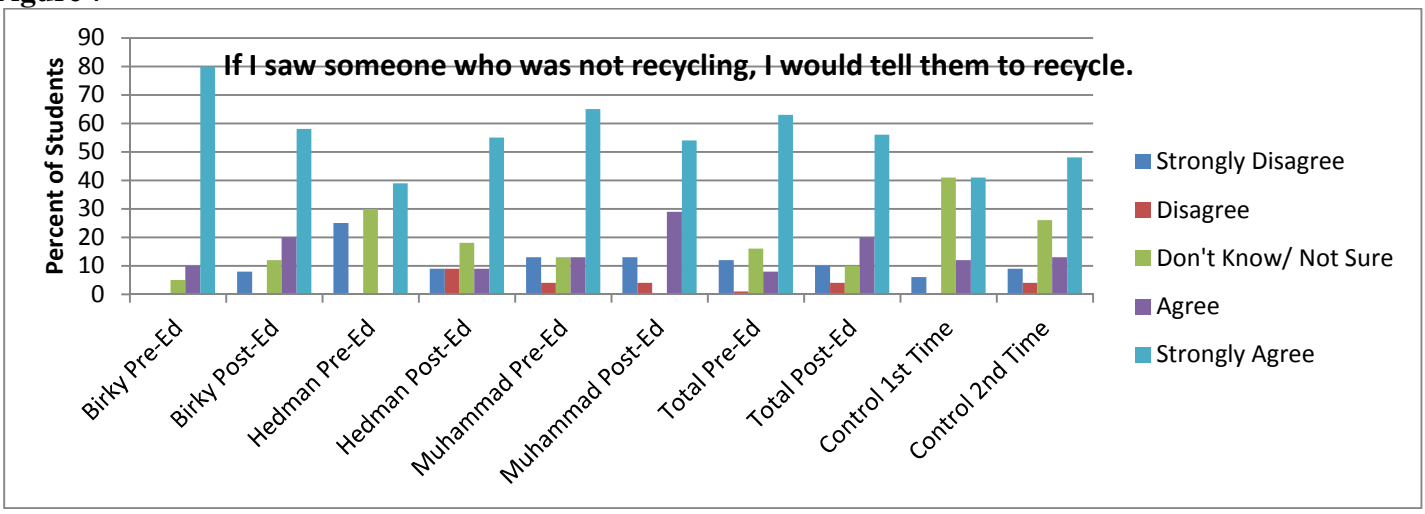
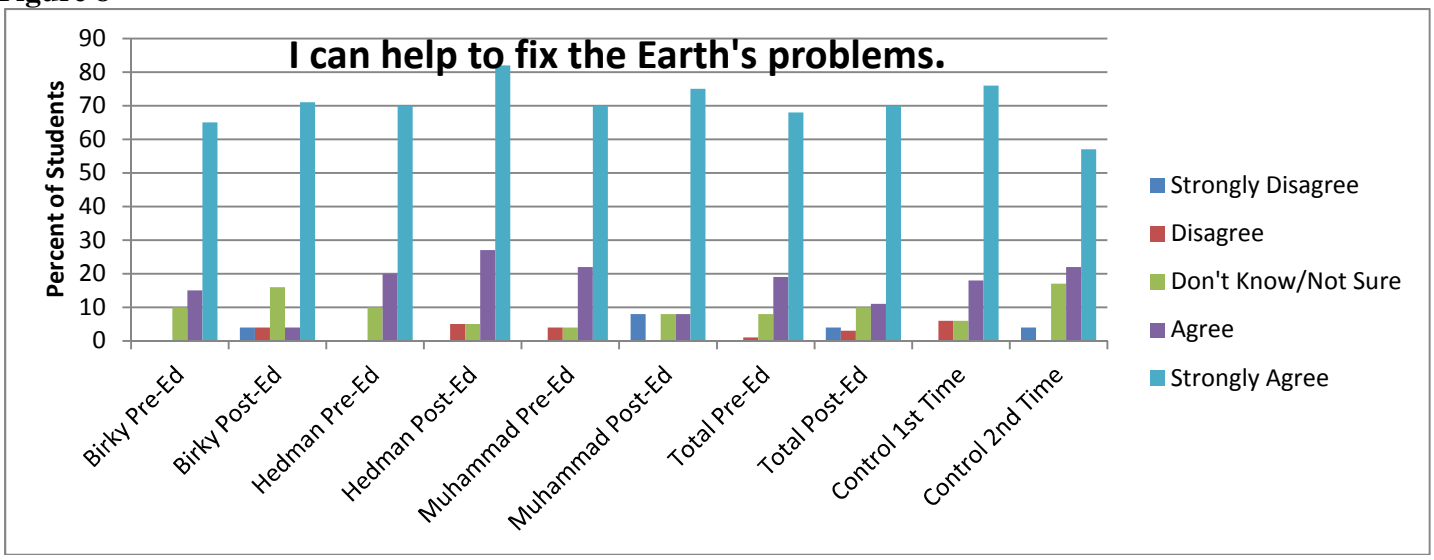


Figure 8



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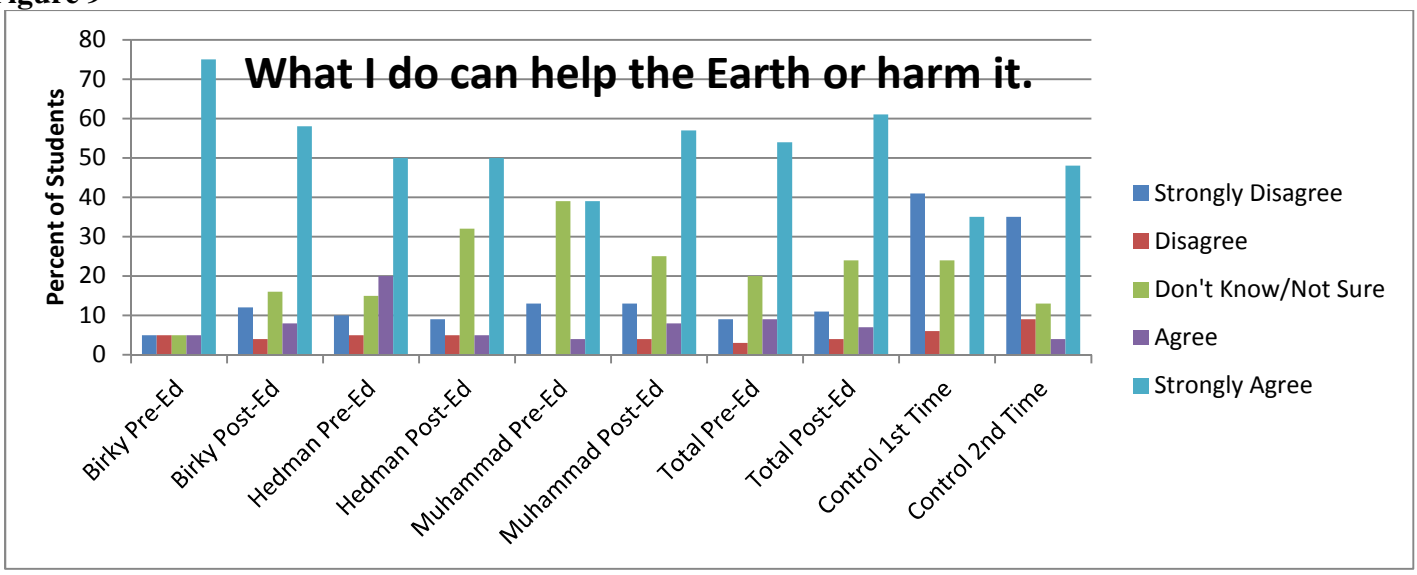

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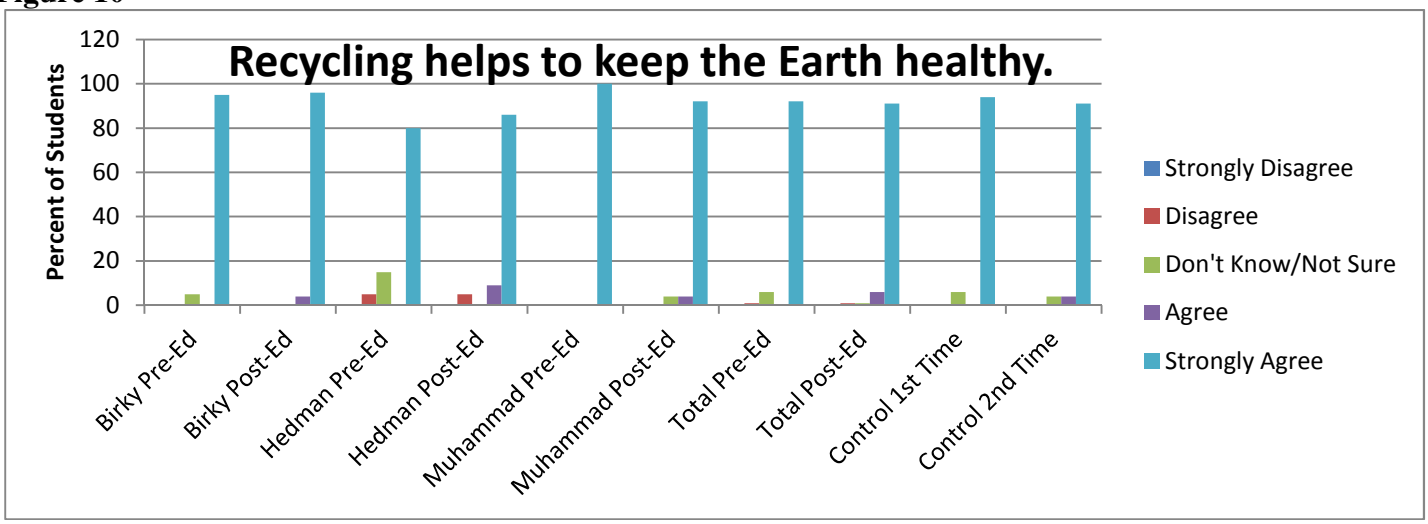


Figure 11

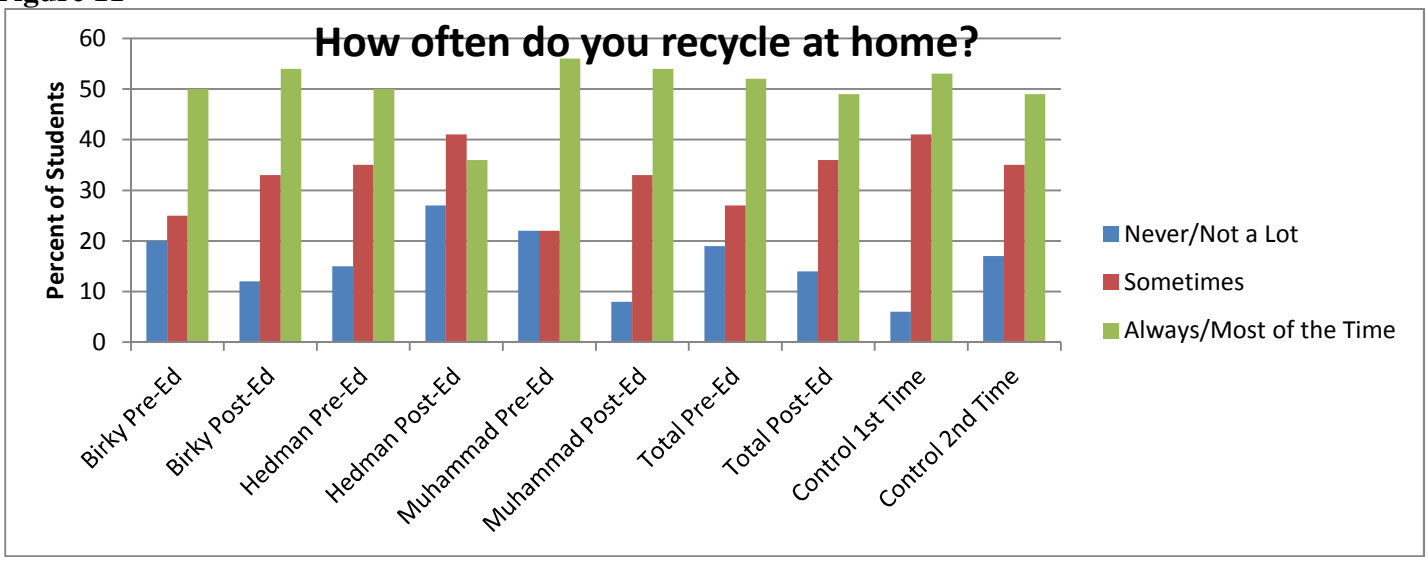


Figure 12

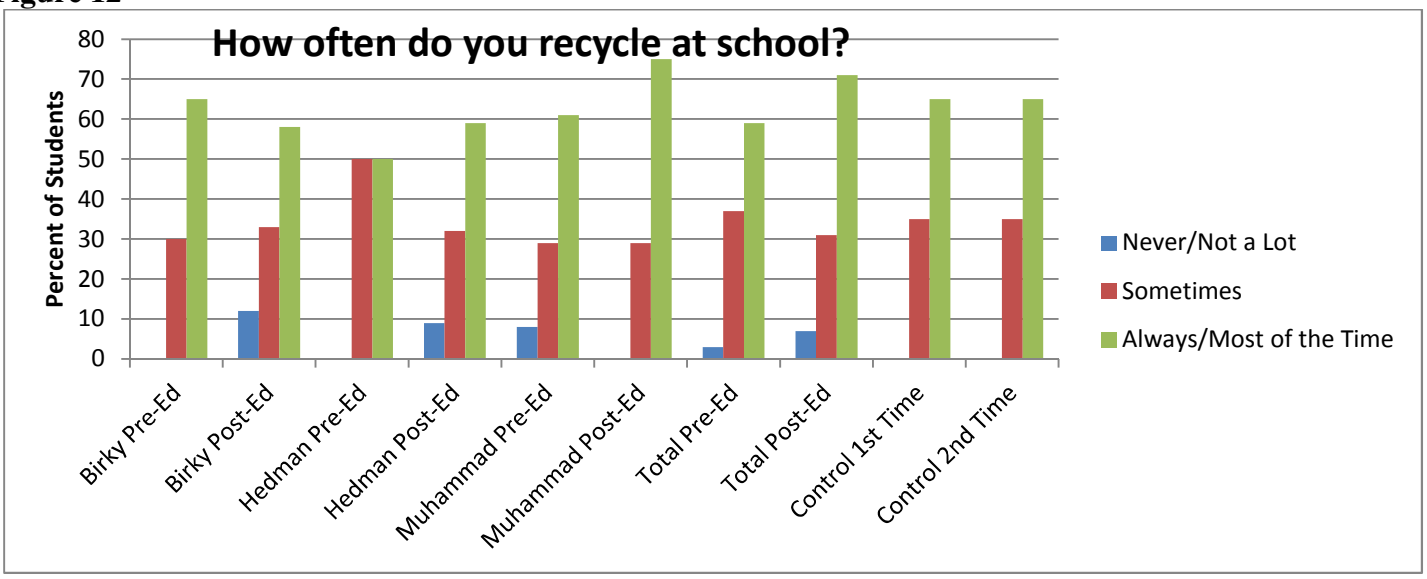
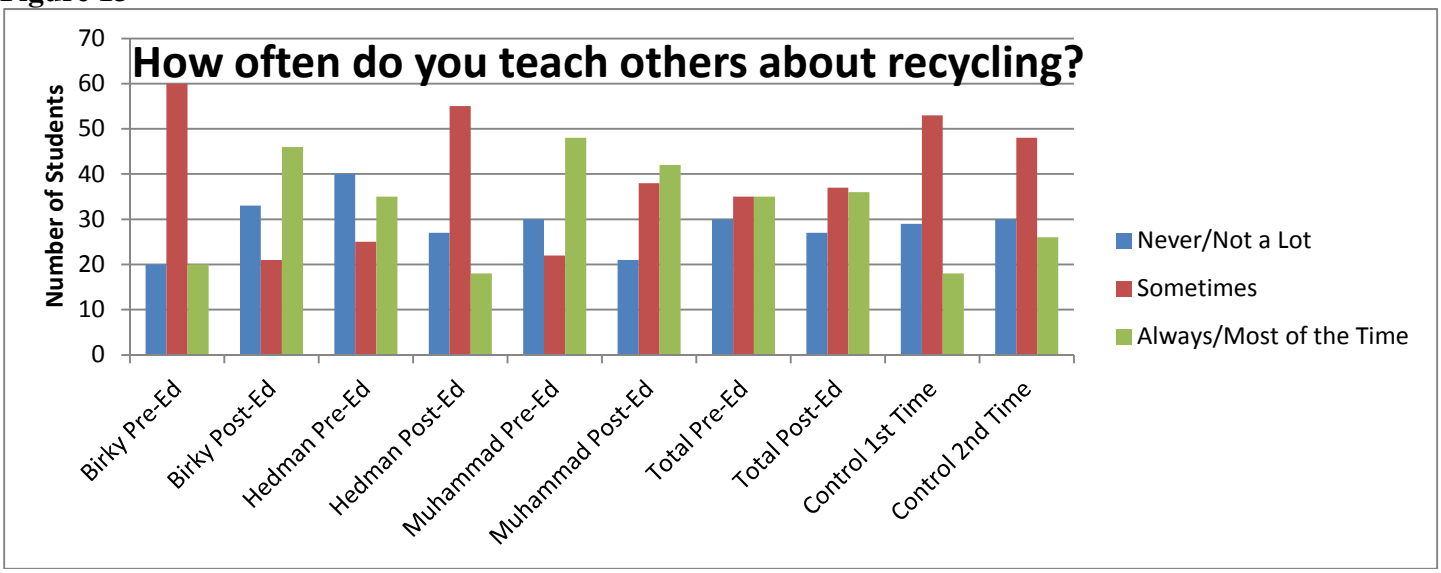
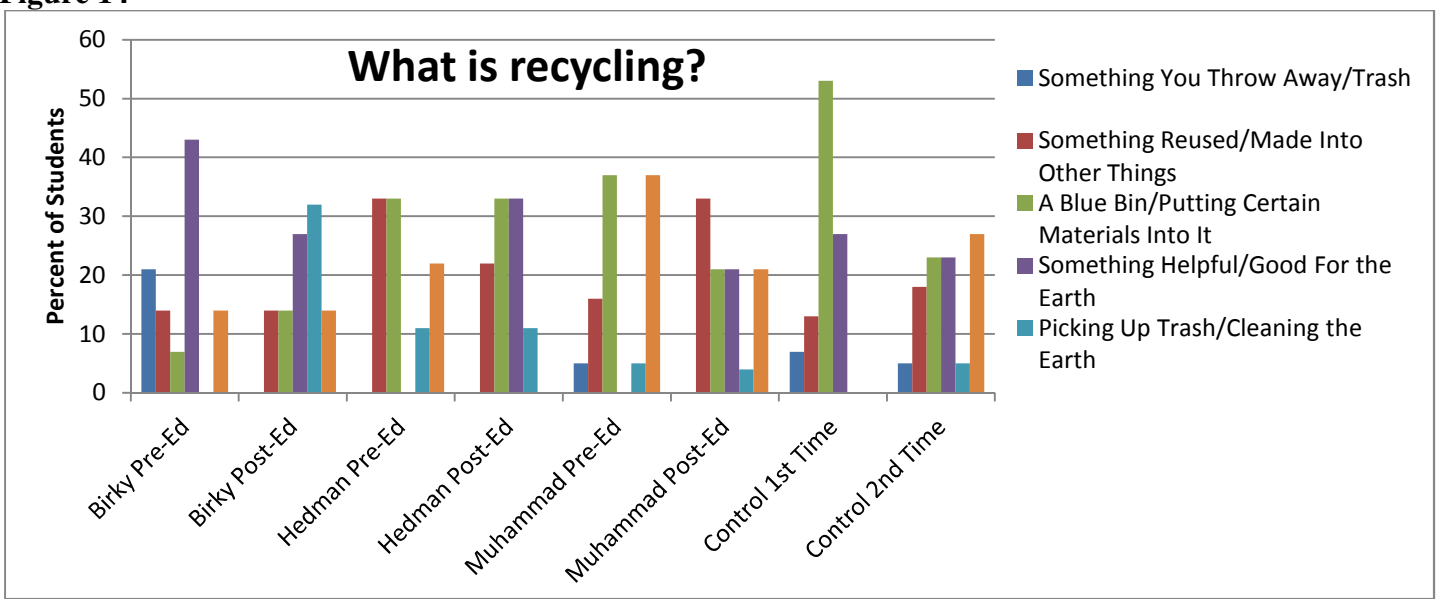


Figure 13



***Note: This chart is based on open-ended responses. These percentages are based on the number of responses, not the total number of students.**

Figure 14



***Note: This chart is based on open-ended responses. These percentages are based on the number of responses, not the total number of students.**

Figure 15

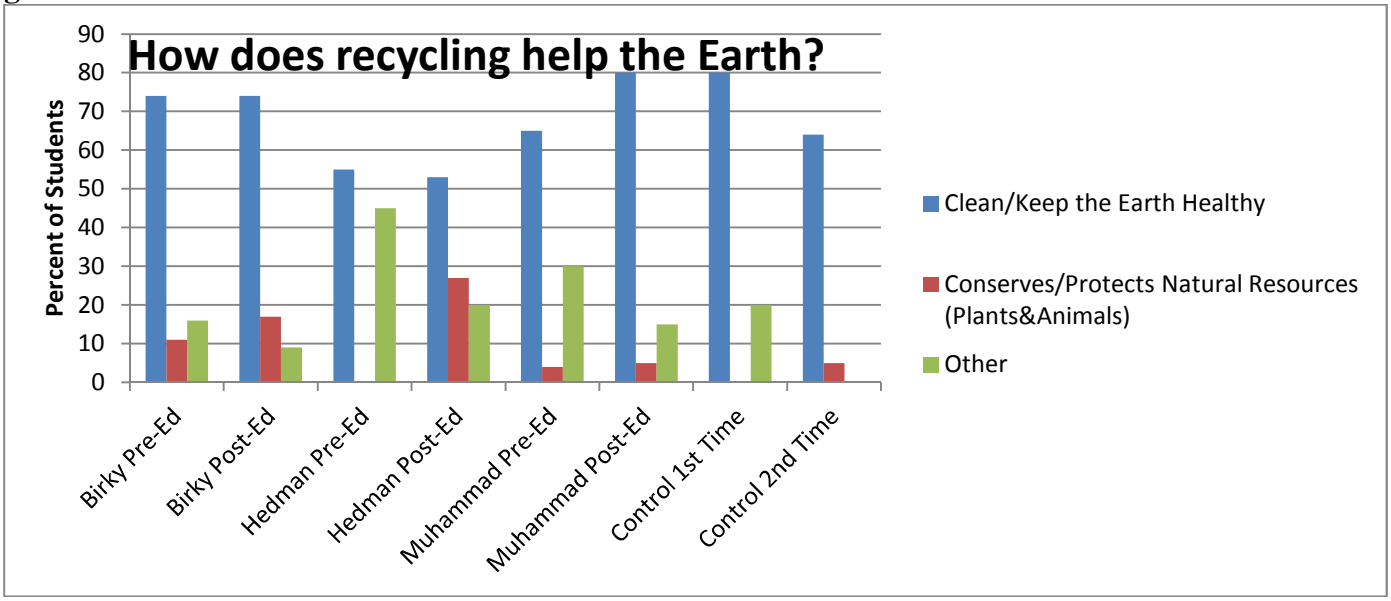


Figure 16 Results of Waste Stream Monitoring in Fox Creek Elementary School

Date/Classroom	Approx. Weight of Recycling (For Week)	Approx. Weight of Trash (Thursday Only)	Special Notes
+ Indicates control classroom ~ Indicates experimental classroom pre recycling program ~~ Indicates experimental classroom post recycling program		* Indicates trash was emptied before data could be collected	
October 6th, 2011			
Muhammad~	.25 lb	0*	
Hedman~	4.5 lb	0*	
Birky~	8.5 lb	0*	
October 13th, 2011			
Muhammad~	.5 lb	.5 lb	Paper scraps found in trash, recycling had no contamination
Hedman~	6.5 lb	2 lb	Paper scraps found in trash, wrappers found in recycling
Birky~	2 lb	.25 lb	Candy wrappers & used tissues found in recycling, paper scraps found in trash
Frye+	2 lb	.5lb	Paper scraps found in trash, recycling had no contamination
October 20th, 2011			
Muhammad~	1.5 lb	0*	Plastic baggies and pencil shavings found in recycling, paper found in trash
Hedman~~	.5 lb	2 lb	Paper found in trash, recycling

			had no contamination
Birky~~	5 lb	.25 lb	Recycling and trash had no contamination
Frye+	3 lb	0*	Recycling had no contamination, paper found in trash
October 27th, 2011			
Muhammad~	2 lb	.5 lb	Plastic baggies found in recycling, paper found in trash
Hedman~~	1 lb	2.5 lb	Recycling had no contamination, paper found in trash
Birky~~	6 lb	.5 lb	Trash and recycling had no contamination
Frye+	4.5 lb	.25 lb	Recycling had no contamination, paper found in trash
November 3rd, 2011			
Muhammad~~	2.5 lb	.5 lb	Paper scraps found in trash, recycling had no contamination
Hedman~~	.75 lb	2 lb	Paper scraps found in trash, recycling had no contamination
Birky~~	.25 lb	.5 lb	Paper scraps found in trash, recycling had no contamination
Frye+	.25 lb	1 lb	Paper scraps and Kleenex box found in trash, recycling had no contamination

Appendix D
Recycling Program Lesson Plan
Target Age: 2nd and 3rd Grade
Duration: 40 Minutes

Materials needed: 4.5 pounds of trash, scale, garbage bags, two recycling bins, two small trash cans, two sets of recyclable and non-recyclable items, Kleenex box

Introduction

Today we are going to talk about a big problem that we have all helped to cause. The problem is that there is just too much garbage on the earth. What do you think garbage is? Where do you think all of this garbage come from? It came from us. Has anyone seen the movie Wall-E? What is the problem in Wall-E? People made too much garbage, and they ran out of space to put it all. The garbage made the earth sick, and then the plants and animals couldn't live and be healthy. Who wants to live on an earth that is sick and full of trash? Not me! Luckily we can all help to solve this problem each and every day.
How much garbage do you think each person throws away every day? Each one of us throws away about 4 1/2 pounds of trash every single day! This is a lot of trash for each one of us to make!

Activity

Have a box of common items that are thrown away. Have kids come up and pick one or 2 items and put them in a bag hanging from a scale. Continue until bag weighs 4.5 pounds. This is how much trash each and every one of us makes per day. All of this adds up to more than 1,600 pounds of trash that each of us makes every single year! That is about how much this entire class put together weighs! This is a lot of garbage per person!

Activity

What types of things are garbage? What are some things that we throw away? Have kids brainstorm a list of commonly thrown away items on the board. This is a lot of stuff that is thrown away. Where does all of this stuff go? When the garbage man comes and picks up the trash it gets taken to a landfill. Who can tell me what a landfill is? A landfill is a big hole in the ground that trash gets buried in. Why don't we want a lot of landfills? They take up a lot of space. Would you want a landfill in your backyard? Most people don't. But if landfills are built where there are not a lot of people, then it still takes up the home of other animals and plants. How can we reduce the amount of stuff that goes into a landfill? By reducing, recycling, and composting. Go back through list and cross of things that could be recycled, reused, or composted.

Which one of these activities do we do in school? We recycle. Recycling is very important to keep the earth healthy. What is recycling? Let's break down the word. Re-cycle. What words start with re? Repeat, reuse, remind. Re means again. What about cycle? What is another word that ends in cycle? Bicycle. (Draw bike tire) What does a bike tire do? It goes around and around? So when we recycle it means that we are using something over and over again and it goes around and around by becoming something new. When we recycle it doesn't go back into the garbage, but it goes back and becomes something new so it can be used over and over again.

Show class Kleenex box. Who can read the bottom of this box for me? It says made with 100% recycled material. What does this mean? It means that the paper and old homework that you put in the recycling bin in your classroom is used to make this Kleenex box. So the paper was recycled and was used over again to make this new box. What would happen if we didn't have old homework and paper to turn into Kleenex boxes? Where would we get the stuff that we need to make the box? We would have to cut down trees. So when we recycle we save trees and other things that come from the earth.

The cardboard and paper that you recycle is used to make new boxes, tissues, and paper towels. Recycled plastic bottles can be made into new bottles, trash cans, or toys. Recycled cans are made into new cans. If we didn't recycle every time we made a new can or bottle we would have to take stuff from the earth. But if we recycle then we use old stuff to make new stuff. This protects the earth and keeps it healthy.

It is important to recycle to help the earth. But it is also important that you recycle correctly. First of all what can't be recycled? You can't recycle food scraps like apple cores or banana peels. These things need to be composted. You also can't recycle anything that is dirty like your used tissues or wrappers. What can you recycle? One of the most easily recycled things is paper. Things includes

newspaper, regular paper, cardboard, and paperboard (stuff cereal boxes are made out of). You can also recycle bottles, both plastic and glass. Another thing that you can recycle is cans. Write lists of what can versus can't be recycled on board.

Go back to 4.5 lb bag of trash and have kids help to sort out things that can be recycled. When we recycle it makes it so less stuff goes into a landfill. This saves space in the landfill and saves earth's resources.

Activity

Now we are going to see how well you guys can recycle. Play "Recycling Rangers". Like we have talked about, a lot of items that are thrown away can be recycled and made into new items. But for this to happen recyclable items have to be separated from garbage first. Break kids into 2 teams. Each has a box of stuff. One at a time they will go up and get something from the box and sort it into recycling or trash. First team done with the most items correctly sorted wins.

What would happen if we didn't recycle? There would be a lot more garbage on the earth and we would waste a lot of stuff! *If there is time read Cynthia Stout poem by Shel Silverstein* Who would want to live in a world like Cynthia's house where garbage is piled up everywhere? What would have happened if she had recycled instead of throwing everything away?

Now that we know more about what recycling is and how to do it, let's talk more about why it is important. How does recycling help the earth? It helps to keep the earth healthy by reducing the amount of garbage and pollution. It also protects the earth by using less of its resources, things like water, trees, air. It also helps to save energy. We turn off the lights in the classroom every day to save energy, and recycling also helps to save energy.

Let's review! What is recycling? Using something over again to make it into something new. What can we recycle? Bottles (plastic and glass), paper (cardboard and paperboard), and cans. What can't we recycles? Wrappers, food scraps, used tissues, old markers, pencils, etc. Why is recycling important? It saves energy, reduces pollution, and helps protect the earth by using less of its stuff.

Remember, there is a very serious problem with too much garbage on the earth. But each and every one of you can help to solve this problem! The first way is to make sure that you always recycle. Then talk to your friends and your family about it. If you see someone that isn't recycling, you should teach them about it. The more people that know about it, the more people that will do it. You all have the power to do something about this problem. So let's all try to make less garbage, and recycle as much as we can.

Sarah Cynthia Sylvia Stout

by Shel Silverstein

Sarah Cynthia Sylvia Stout
Would not take the garbage out.
She'd wash the dishes and scrub the pans
Cook the yams and spice the hams,
And though her parents would scream and shout,
She simply would not take the garbage out.
And so it piled up to the ceiling:
Coffee grounds, potato peelings,
Brown bananas and rotten peas,
Chunks of sour cottage cheese.
It filled the can, it covered the floor,
It cracked the windows and blocked the door,
With bacon rinds and chicken bones,
Drippy ends of ice cream cones,
Prune pits, peach pits, orange peels,
Gloppy glumps of cold oatmeal,
Pizza crusts and withered greens,
Soggy beans, and tangerines,
Crusts of black-burned buttered toast,
Grisly bits of beefy roast.
The garbage rolled on down the halls,
It raised the roof, it broke the walls,
I mean, greasy napkins, cookie crumbs,
Blobs of gooey bubble gum,
Cellophane from old bologna,
Rubbery, blubbery macaroni,
Peanut butter, caked and dry,
Curdled milk, and crusts of pie,
Rotting melons, dried-up mustard,
Eggshells mixed with lemon custard,
Cold French fries and rancid meat,
Yellow lumps of Cream of Wheat.
At last the garbage reached so high
That finally it touched the sky,
And none of her friends would come to play,
And all of her neighbors moved away;
And finally, Sarah Cynthia Stout
Said, "Okay, I'll take the garbage out!"
But then, of course it was too late,
The garbage reached across the state,
From New York to the Golden Gate;
And there in the garbage she did hate
Poor Sarah met an awful fate
That I cannot right now relate
Because the hour is much too late
But children, remember Sarah Stout,
And always take the garbage out